GLEANINGS in Bee Culture

Each New Year Offers

You an Opportunity to Improve Your Beekeeping Equipment

HISTORICAL YEARS

1867
A. I. Root built the first practical extractor, the Novice

1869
THE A. I. ROOT COMPANY founded

1876
Root developed the embossed double-roll foundation mill

1889
A. I. Root introduced hives with straight square edges and lock-corners

1896
Root-Weed method of sheeting beeswax was perfected

1905
Anti-spark Draft on smokers introduced by Roots

1919
"True to Nature" foundation base developed by Roots

1923
Root's 3-ply foundation was placed on the market

*

Food Chamber hive developed by Roots

1926
Simplicity extractor invented

1927
Root's triple-locked standard frame

1931
Expanded metal pockets introduced on Root extractors

The House of Roots

Can serve you with all kinds of beekeeping equipment that is outstanding in every detail. Root Quality bee supplies are designed and tested by the leaders in beekeeping. Every economy has been put into practice to produce satisfactory quality merchandise at reasonable prices.

Remember

Quality for Quality, You Pay Us No More

GUARANTEED SATISFACTION

Build up your beekeeping into a more profitable source of income. Write for information on your problems. Root's 1938 catalog will offer you the latest improvements at prices that save you money over the years.

The A. I. Root Company

Medina, Ohio

Root QUALITY
BEE SUPPLIES

Gleanings in Bee Culture

Established 1873

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Keep Your Eyes on KELLEY

I will have new items to offer for 1938. Items so simple that each one of you will say "WHY DID I NOT THINK OF THAT?" Items so useful that every beekeeper will want them. Items whose prices are so low that you can not afford to be without them.

My 1938 catalog should be in the mails late in January. Drop me a card if you are not yet on my mailing list and let me quote you on your needs, and mail you a catalog later.

QUALITY AT LOW PRICES

The Walter T. Kelley Co., Paducah, Kentucky

Bee Supply Manufacturers

A Happy and Prosperous NEW YEAR!

is our wish to our many friends and customers!

1938 should be that year we have been looking forward to for such a long time—the year when weather and plant conditions are favorable—the year when there will be a bumper crop of fine honey!

We shall be ready to serve you in every way we can and to fill your orders for Root Quality Bee Supplies and Honey Containers promptly.

Now is a good time to get your old combs, scraps, and cappings together and send them to us to be rendered into beeswax. During the winter months, we can do this work promptly and at reasonable rates. If you have large lots of wax, why don't you write for our terms for making it into Root's famous Three-ply and Single-ply Airco foundation?

We're all hoping that for you 1938 will be "the best ever".

A. I. Root Co. of Syracuse

Midland Ave. and Tallman St.

SYRACUSE, N. Y.

SERVES YOU BEST

"50 - 50"

Four important things control your honey crop. Upon these, depend the amount of your success or failure.

QUEENS FOUNDATION SEASON YOUR ABILITY

Muth's Queens (ultra violet treated) and "Hercules" non-sagging comb foundation takes the **chance** out of half your problems.

Ship your beeswax to us for manufacturing into comb foundation. Our high quality is undisputable, our prices low, attractive.

AS LOW AS 10c PER POUND

Write for complete list of working your wax into various sizes and weights. Money saving prices quoted on all other supplies. Buy early and save money.

THE FRED W. MUTH CO.

Pearl & Walnut Sts. Cincinnati, Ohio

1938

is your biggest year because it is before you!

WHAT ARE YOU GOING TO DO WITH IT?

Let's make it a Comb Honey Year! The market was short again in 1937, and prices advanced. Doesn't this spell P R O F I T to you!

We are ready to co-operate with you by supplying you with the best quality Bee Supplies at low prices consistent with that Quality.

And, remember that—There are no better COMB HONEY SECTIONS than LOTZ makes. A trial will convince you.

If you are not on the mailing list to receive our new 1938 catalog, write today! Write for prices on quantities.

August Lotz Company
Boyd, Wisconsin

Friction Top Pails and Cans

Prices effective October first
f.o.b. Lansing

		50	100	500
2½	lb. cans.....	$2.25	$4.25	$21.00
5	lb. pails.....	3.25	6.50	31.00
10	lb. pails.....	4.85	9.65	47.50

5-gallon Cans
f.o.b. Lansing

6	5-gal. cans	$ 1.90
12	5-gal. cans	3.75
50	5-gal. cans	14.00

M. H. HUNT & SON
LANSING, MICH.

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AT INDIANAPOLIS----Get Our Prices

We have a fine stock of bee supplies and give prompt service to all parts of the state.

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PATENTS—Williamson & Walton
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has now proven it's
SUPERIOR QUALITY
to hundreds of satisfied users.
SHIP US YOUR WAX for cash or to have it worked into foundation. Write for price list to:
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HONEY FOR SALE
PACKED OR BULK
A CAN OR A CARLOAD
THE DIAMOND MATCH CO.
Chico, California

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Falcon Quality Products

W. T. Falconer Mfg. Company
Falconer, New York

XUM

The Monthly Honey Market

U. S. GOVERNMENT REPORT

Information from Producing Areas (first half of December).

California Points: Southern California—Toward the close of the period fairly heavy rains occurred throughout most of the southern portion of the State, with considerable cloudiness and fog earlier in the month. Temperatures ranged normal to above. The rainfall was much needed as sage and other plants were becoming extremely dry. Beekeepers in the orange areas expect that if rainfall is not ample, many colonies of bees will be moved which would normally stay in the sage and buckwheat ranges, thus possibly overcrowding the orange district. Some apiaries are being moved to eucalyptus areas near the coast in Orange and Los Angeles Counties. Colonies generally have ample stores of honey and pollen and are fairly populous. The market has been rather slow, and prices are slightly below those of a year ago. Sales by beekeepers in ton lots or more, per lb., f. o. b. Southern California delivery points: Orange, Extra White mostly 6¼, few to 6⅝c, White 5⅞-6c; Sage, Extra White to Water White 5½-5⅝c, very few 6c. White 4¾-5c; Buckwheat Sage, Light Amber to Extra Light Amber 4⅜-4⅝c. Beeswax is barely steady at mostly 21-22c per lb. delivered Los Anaeles.

Imperial Valley—The weather has been unusually warm, with no frosts. No nectar is available, but a little pollen may still be secured from late milo. There appears to be an undercurrent of strength to the market but too few sales have been reported recently to establish a market.

Central California—Unusually heavy rains occurred during the first half of September, with floods in many sections. This rainfall will stimulate manzanita and other plants, and several lots of bees have recently been moved to manzanita sections and some to eucalyptus locations. Most colonies are strong in young bees, with adequate honey and pollen supply. Occasional manzanita and eucalyptus are in bloom and furnishing a little nectar. Honey dealers are generally well stocked and are not in the market at this time for additional supplies. Trading is slow but beekeepers are said to be offering rather freely at prices of two weeks ago and in some cases at slightly lower figures. Sales by beekeepers in ton lots or more, per lb., f. o. b. Central California delivery points: Sage, Extra White to Water White 5¾-6c, Extra Light Amber to White 5-5½c; Mixed Flowers, Light Amber 4-4½c, Darker 3½-3¾c.

Special for Beekeepers

"Honey and Health"

by Dr. Bodog F. Beck

This wonderful authoritative book is in the hands of the printers and will be released soon. Every beekeeper and honey producer needs such a book because it contains their sale's arguments. Illustrated. The price of the book when printed will be $4.00 You can secure this book for only $2.00 if you send your remittance at once before publication to Dr. B. F. Beck, 116 E. 58th St., New York City.

Northern California—Rainfall has been heavy, with floods in many sections. Plants are reported making a good growth and getting an early start. Growers are offering honey freely but relatively few buyers are in the field as most dealers are now stocked up and sales are not heavy. The market is generally steady to slightly weaker. Sales by beekeepers in ton lots or more, per lb., f. o. b. Northern California delivery points: Thistle, Extra Light Amber to White 4¾-5c, occasional lot higher; Light Amber Thistle and Mixed Flowers 4-4¼c; Extra Light Amber Mixed Flowers 5c.

Beeswax has fluctuated, advancing early in the month to 23-24c per lb. but selling at the close of the period at 22-23c per lb. for good yellow wax f. o. b. Northern and Central California producing areas.

Pacific Northwest: West of Cascades—The weather has moderated during the past two weeks with no frost of consequence. Bees had a few days of flying weather and have gathered some pollen from clover and dandelions. Colonies are still in good condition and wintering well to date, but due to the warm weather stores have been consumed heavily, and some colonies in the fireweed area will need some feeding by March at least. A heavy planting of vetch is reported in the Willamette Valley. Sales reported, White Fireweed 6¾c in large lots, Extra White to Water White Fireweed 7-7¼c; White Vetch-Thistle 6½c; small pails White Fireweed 10 1/5c per lb. Beeswax is steady, with dealers paying mostly 23c per lb. in trade.

East of Cascades—Considerable rain and snow have fallen during this period, keeping bees in the hives. Colonies in the Yakima Valley are in good condition with sufficient stores and young bees, and averaging much better than colonies did a year ago. Prospects are therefore that bees will go through the winter in the Yakima Valley in better shape than last winter. Bees in the Umatilla Valley are not so well provided with stores as colonies farther West. The movement of honey has been fairly steady but slow, with prices either unchanged or slightly higher. Sales reported Light Amber to White Sweet Clover-Alfalfa ton lots 6½-7c per lb., some with cases and cans returned, small pails 8½-8¾c per lb. Beeswax, wide range 20-30c per lb. according to quality.

Intermountain Region: The honey market has been unusually quiet during this period, with slower local sales than usual, with little inquiry or sales of carlots. Some beekeepers are still holding carlots of extracted honey at 6½c per lb., anticipating more inquiry after the first of the year. One car White Sweet Clover-Alfalfa reported sold at 5½c per lb., ton lots, white to water white, 5½c to 6¼c, some 5½c with cans returned; 60's 6-7c per lb., small pails 7-8c; few up to 9½c per lb.; Extra Light Amber, ton lots 5½c. Light Amber Mixed Alfalfa and Fall Flowers 4¾c; small pails Light Amber Alfalfa 6½c per lb. Bulk comb, 9c per lb. Beeswax, average run 25-28c per lb. according to quality, mostly 25-26c per lb. Details by States follow:

Colorado—Near zero weather during part of the time has kept bees confined to the hives in the eastern part of the State, with bees on the Western Slope mostly in cellars. Precipitation during the past few weeks has brought fall moisture up to normal on the Western Slope, and a fair amount of snow is reported already in the hills. Moisture deficiency is reported becoming rather serious in the southeastern part of the State.

SUMMARY—Temperatures during the last two weeks have been exceptionally low east of the Rockies, with freezing temperatures extend-

ing south into Florida and with zero temperatures south to Iowa and Nebraska. Snowfall has been general over the upper eastern portion of the country, reaching 25 inches near Buffalo, N. Y., but with much of the West, even in the mountain area, having scanty snow cover, or none as yet. More concern is expressed this season than is usual regarding wintering possibilities of the colonies because of the mild weather up to the last of November which permitted frequent flights but also resulted in substantial consumption of stores, and also because winter stores in numerous areas were either unripened or darker in color than usual and of doubtful quality.

Demand for honey in wholesale lots has sagged during recent weeks, with both bakers and bottlers purchasing in lighter volume than last year at this time. The cold weather has stimulated local demand for extracted honey. Market prices have a weaker tendency and in some cases slight price declines have taken place as buyers feel that honey should follow the lower prices of many other agricultural commodities in spite of the short crop. Stocks of honey are light almost everywhere, however, except in California and in the Buckwheat Region of New York where substantial stocks are still on hand. Comb honey is everywhere scarce with few quotations available. Beeswax is in good demand with the market tendency firm to slightly stronger in many areas.

Exports to the United Kingdom have recently been of increasing volume, totalling 483,000 pounds during September and October. Total exports of honey from January through October, of 1,901,000 pounds are nearly double those of the same 10 months last year, of 985,000 pounds. Total imports of beeswax for the 10-month period, of 4,850,000 pounds, compare with beeswax imports of 3,548,000 pounds from January through October, 1936.

Monthly Report of Honey Producers

Early in December, 1937, we sent the following questions to honey producers: What per cent of the honey produced in your locality has already left the hands of the producers? Give answer in per cent. 2. At what price has honey been sold or contracted for, if any, in large lots, (carload or less) in your locality during the past month for (a) Extracted honey, per pound? (b) Comb honey, fancy and No. 1, per case? 3. What are prices when sold to grocers in case lots of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) Comb honey, fancy and No. 1, per case? 4. What is the retail price to consumers in your locality of (a) extracted honey in 5-lb. pails, or other retail packages in terms of 5-lb. pails? (b) comb honey, fancy and No. 1, per section? 5. How is honey now moving on the market in your locality? Give answer in one word, as slow, fair or rapid. 6. How does the number of colonies to be wintered in your locality compare with that of last year? Give answer in per cent. 7. What is your estimate of prospects for a normal honey crop in 1938, considering the present condition of the bees and honey plants? Give answer in per cent of average crops for your locality.

State	Name	Per cent Sold	Large Lots Ex.	Large Lots Comb	To Grocers Ex.	To Grocers Comb	To Consumers Ex.	To Consumers Comb	Movement	P. C. Wintered	Est. for 1938
SE-Ala.	(H. C. Short)	100			.55		.60		Fair	100	100
SC-Ala.	(J. M. Cutts)									100	100
S-Ala.	(J. Clay Dickman)	75			.40		.50		Slow	100	100
B. C.	(A. W. Finlay)	60	.10		.70		.90		Fair	100	
S-Calif.	(L. L. Andrews)		.06¾				.60	.20	Fair	110	25
SE-Colo.	(Otis E. Adcock)	50	.06½		.44		.50	.20	Fair	100	50
E-Conn.	(Allen Latham)	18			.75	4.75	1.00	.28	Fair	100	100
C-Conn.	(A. W. Yates)	75	.07½	4.50	.70	5.00	1.00	.20	Fair	100	100
S-Fla.	(C. C. Cook)	100	.06		.50		.65		Rapid	100	100
S-Fla.	(Harry Hewitt)	80			.50		.65		Fair	95	100
SE-Ga.	(J. J. Wilder)	80	.05½		.50		.65		Fair	100	40
NC-Ind.	(T. C. Johnson)	80			.60	4.00	.65	.23	Fair	100	100
NW-Ind.	(E. S. Miller)	35			.50	3.60	.65	.20	Fair	90	100
W-Iowa	(E. G. Brown)	100			.55		.65		Fair	85	75
S-La.	(E. C. Davis)	75	.06		.40		.55		Fair	100	100
N-Me.	(O. B. Griffin)	75				4.80		.30	Slow	105	100
C-Md.	(S. G. Crocker)	95			.75	4.00	1.00	.25	Fair	100	75
N-Mich.	(Ira D. Bartlett)	90			.55		.75		Fair	90	100
S-Mich.	(Floyd Markham)	90	.08		.60	4.80	.75	.29	Fair	100	100
C-Mich.	(E. D. Townsend)	100								90	80
E-Minn.	(Floyd W. Ray)	90	.06¼		.47		.60		Fair	100	80
W-Minn.	(B. L. Morehouse)	50	.06¾		.50		.65		Rapid	110	100
W-Nev.	(Geo. G. Schweis)				.40	3.25	.55	.20	Fair	100	100
W-N. M.	(C. A. Baltzley)	90	.06	2.60	.45	3.60	.59	.21	Fair	80	75
NW-N. Y.	(Geo. B. Howe)	90	.07½		.60		.70		Fair	100	100
C-N. Y.	(F. W. Lesser)	50	.07¾						Fair	100	125
NW-N. C.	(C. A. Baumgarner)	100			.80		.95	.25	Slow	100	125
SE-N. C.	(W. J. Martin)	90	.06¾		.65		.85	.20	Fair	100	100
C-Ohio	(R. D. Hiatt)	100			.57	4.50	.75	.27	Fair	100	100
NC-Okla.	(C. F. Stiles)	70			.46		.65	.20	Slow	80	85
C-Okla.	(C. A. Baltzley)	85	.05½	2.70	.43	3.60	.63	.20	Fair	95	85
W-Ore.	(H. A. Scullen)	50			.40		.55		Fair	100	100
C-Pa.	(Harry Beaver		.08		.55	3.25	.65	.17	Fair	100	
SE-Pa.	(D. C. Gilham)	30	.09		.70	4.25	1.00	.25	Fair	110	
W-S. C.	(E. S. Prevost	98							Fair	90	90
NE-S. D.	(L. A. Syverud)	80			.54	3.60	.61	.19	Fair	90	75
C-Texas	(T. A. Bowden)	80		.57	.55			.60	Fair	95	60
S-Texas	(J. N. Mayes)	90	.05						Rapid	100	90
S-Texas	(H. B. Parks	90	.06		.48		.55		Fair	95	100
N-Utah	(W. H. Hendricks)	90			.42½		.55		Fair	82	98
SC-Wash.	(Chas. Higgins)	75	.06¾				.52		Fair	100	100
N-W. Va.	(W. C. Griffith)	80					.75	.20	Fair	100	100
SE-Wisc.	(N. E. France)	100					.55		Fair	75	80
W-Wisc.	E. H. Hanselman)	90			.55	4.50	.65	4.00	Good	50	50

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ROOT SERVICE From CHICAGO

To our friends and customers—

Happy New Year

With a desire to win—with a will to do—with a determination to produce results—let us make nineteen-thirty-eight a good year.

Plan for a good year. Make ready now the supplies you will need in the active season.

May we help you choose the right equipment? Let us quote on your list.

Ask us for beekeeping literature.

Keep your honey customers. With a good crop this year you may need them. We offer select lots of honey. Glad to send samples as desired. Write us about your needs.

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Screw-on Gate

Fill bottles, pails, from 5 gal. cans. Patented. Saves time and labor. No dripping or splashing. Well made, nickel-plated. Sizes 1¾" to 3"; measure across cap or send a cover. Price $1.00 plus postage. Wt. 1 lb. State if cans have letter "C" on bottom. Order from Ernest Fahlbeck, 406 S. Springfield Ave., Rockford, Ill. C. W. Aeppler, Oconomowoc, Wis. Walter T. Kelly Co., Paducah, Ky. August Lotz Co., Boyd, Wisc.

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GRAND RAPIDS, MICH.

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2 Years $1.50

American Bee Journal—monthly; published and edited by beekeepers for beekeepers. Full of pictures and tips on care of bees and selling of honey. **SAMPLE COPY FREE.**

$1.00 a year, 2 years $1.50 in U. S. A. and Canada.

Combined with Gleanings in Bee Culture—both magazines, **ONE YEAR, $1.60.** This offer good only in the United States. Address—

American Bee Journal, Hamilton, Illinois

"Three Thousand Cans Extracted--No Broken Combs"

"You may be interested in knowing that we have extracted approximately 8,000 60-lb. cans of honey with the 8-frame 'LIFETIME' extractor which we purchased from you at the beginning of the honeyflow. At the time the machine arrived, we were anxious to begin extracting and did not take the time to anchor it, other than to connect the extractor to the honey pump with a piece of hose. We operated the extractor that way for ten days, during which time we took off 1,000 60-lb. cans of honey. It is surprising how smoothly the extractor ran, merely set on the cement floor.

"We had a 16-year old boy running the extractor and regardless of weather conditions and the speed at which we extracted, there were no broken combs. We wish to assure you that we are entirely satisfied with our 'LIFETIME' extractor."

(Signed) STUART BRO.,
Jerome, Idaho.

NEW DENVER BRANCH NOW OPEN

The Denver branch is being opened to better serve the increasing number of customers which we have in the Denver area. The address is 3759 Wazee Street (corner of 38th and Wazee Streets) right at the 38th Street subway and just off highway No. 85. The conduct of our business at Denver will be along the same lines as at our other houses.

Superior Honey Company, Ogden, Utah

Branches at Idaho Falls, Idaho; Los Angeles, California and Denver, Col.

Berry's Reliable Queens and Package Bees

Berry's Bees are Better than the Best

Great Honey Getters Long Lived Disease Resistant

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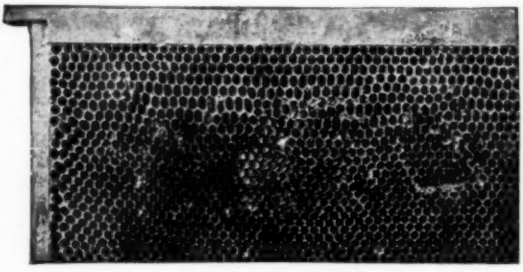
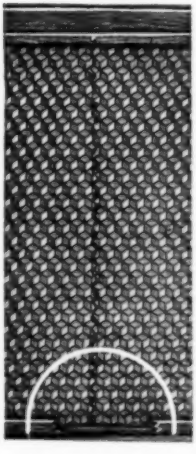


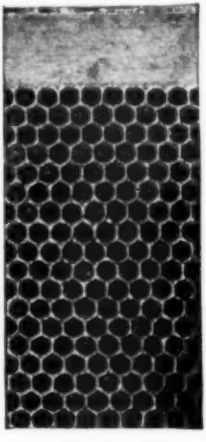
Ten Inches of Poor Comb Costs You FOURTEEN THOUSAND BEES

Pure Beeswax

In all Dadant's Foundations you are sure of nothing but absolutely pure beeswax, just as your bees make it; safe for food or industrial use on any market.

With twenty-three worker cells to the square inch and six cycles of brood a year, ten square inches of poor comb, lost to brood-rearing, may reduce the worker bee and harvest count by **fourteen hundred bees.** A single comb with this much lost brood area, used ten years—**costs you fourteen thousand bees!**





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Comb in the brood nest, unfit for brood, is a source of loss you can't afford. It not only cannot produce workers, it interferes with laying in the comb that is fit for brood; it may produce crop-consuming drones by the hundreds. It's costly any way you look at it.

With Dadant's Crimp-wired Foundation in Lewis slotted bottom-bar frames, you get all-worker comb from top to bottom and from corner to corner. Try it and watch the bees pour out. Get the best queen you can get to head your colony, give her a set of all-worker combs, and watch your supers fill with honey.

DADANT & SONS, Hamilton, Illinois

Makers of Dadant's Famous Foundations

Crimp-wired—Plain—Surplus

DADANT'S FOUNDATION
CHOICE OF EXPERT BEEKEEPERS

BEESWAX WANTED. We buy at all times. Send a card stating quantity you have to offer.

Vol. 66
No. 1

Gleanings
in Bee Culture

January
1938

Making the Most of Winter

While the Bees Are Resting Beekeepers May Dream and Plan the Summer Program

Grant D. Morse

Much beekeeping is done during the winter season in the northern portion of the United States and in Canada. It is then that the bees are gentlest, the weather the best, the sweet clover in fullest bloom, and the honey flow the heaviest —in imagination.

Of course the beekeeper who stays north during the winter (as most must) doesn't do his beekeeping in imagination alone; but show me the fellow who cannot in times of snow, picture for himself the season of honey flow and you have shown me a man who will harvest little surplus.

Success in almost all fields is built first upon imagination (a plan), and secondly, upon work to carry out the picture painted by that imagination.

What beekeeper would be able, in freezing weather, to sit or stand for hours getting bee equipment in shape for the spring and summer who cannot vizualize for himself how that equipment is going to help the bees do their part in the business of helping themselves and their earthly master?

But imagining and dreaming alone during the winter will not bring a yield of honey. All of us have some idea of how we should go about it to get a profitable surplus. What can we do during the winter to assure that profit?

A Comfortable Workshop Essential

First, have we a comfortable place in which to work? The honey house, or work shop, doesn't have to be fancy, but it should be comfortable. That means the room we work in during the colder days of the long winter months must be small enough so we can heat it. A day or so spent in sealing that work room so it is reasonably free from winter winds, so the roof doesn't leak, and the stove draws well is time well spent. Cold hands don't necessarily make a warm heart.

Then there is the old equipment to get into good shape. There seems always to be some supers that need nailing. Some need repair. A new strip

at one edge of a super, or a couple of nails driven into a rabbet may save buying a new one, or perhaps even save a valuable colony from being robbed out next season.

There's always many an old frame that needs repair. A good frame of drawn comb is worth money. Try to buy one from another beekeeper if you don't think so; or estimate carefully the expense in money to you, and time to the bees in getting a new comb into condition for storing honey. I don't advocate the repair of useless equipment, but many of us discard materials just because it's easier to do so.

Dirt and propolis—chiefly propolis, make operation of the bee equipment slower and more damaging to the equipment, so time spent during the winter in scraping hive bodies, bottom boards, inner covers, frames and excluders is not time wasted.

And there's the matter of protecting the wood from weather. Paint may seem an expensive luxury, but Nature does awful damage to wood if we don't use paint. I'm not advocating the exclusive use of **white** paint. For some locations I personally believe red, or yellow or some other colors are even better. For one thing they're cheaper, and for another they're less conspicuous. Many an apiary does business year after year in a little clump of trees or brush by a highway all unknown to the thousands who travel close by day after day. And every unit of population unfortunately seems to have its sprinkling of thieves—its Judases. Did you ever stop to consider the money we human beings spend and the time we devote to protecting our property from thievery? If ever any one of us is tempted to steal let him remember the curse that must be upon his head for causing such inconvenience to the ninety and nine of us who are honest! White paint absorbs fewer of the sun's rays than such colors as red or yellow, but over-heating the bees in hives placed under trees or brush is not really a problem in northern latitudes. Such locations also provide shelter from work-disturbing winds in summer and from chilling air currents in winter.

Assembling New Equipment

Almost every beekeeper must either make additions or replacements to his equipment every year. The winter season is the best time to get new equipment ready. What is so disturbing to the beekeeper's progress and to his disposition as being compelled to get new equipment ready when a honey flow demands his presence in the bee yard? The proper wiring of frames and foundation, the careful handling of comb-honey sections demand undisturbed time and patience. A warm room in winter is essential to proper handling of foundation—another argument in favor of a snug work shop.

Are packing cases to be built? Many beekeepers find them a good investment in spite of rather general use of tar paper. For one thing the packing box automatically provides a place to store valuable packing material such as leaves or chaff. As experienced men have pointed out, such packing material improves with age and use. Winter months afford time for the building of packing boxes. Some beekeepers keep their regular hives in packing cases the year around, because they feel that the extra packing insulates against summer sun as well as against winter cold; also the labor or handling is thereby avoided.

Incidentally, a warm work shop may serve as a pleasant reading room—and not all reading, even of our favorite bee magazine, is by any means a waste of time. Reading is somewhat like visiting another beekeeper, or attending a convention—or possibly like going to church: if we get one idea we can use, the time has been well spent. If the wife doesn't object too much, the shop may serve on frequent occasions as a get-together place with the boys—a place where the old radio may be turned on, or an innocent game of pinochle played, or a gab-fest held, or even coffee and doughnuts enjoyed—doughnuts sweetened with your own favorite flavor of honey, and coffee brewed on your own private stove where the wife isn't inconvenienced, by cracky!

But finally, and perhaps most important of all, the winter season and the comfortable work shop provide a haven in which the beekeeper, who is usually something of a dreamer anyway (more glory to him here and hereafter!) may imagine the pleasant things that are going to transpire when the spring flowers bloom again next spring.

Here's to a pleasant and profitable winter in the work shop!

Saugerties, N. Y.

Bee Breeding

W. J. Nolan
Apiculturist, Division of Bee Culture, Bureau of Entomology and Plant Quarantine.

[We are here printing entire as a series appearing in consecutive issues, the article on bees which appears in the U. S. Dept. of Agri., "Yearbook of Agriculture", for 1937.—Editor.]

The economic importance of bee breeding, measured in dollars, is probably greater than is realized even by the beekeeper. The potential stake of agriculture in the United States in queens alone is over $2,000,000, if a value of 50 cents, the minimum price set by the marketing agreement governing the sale of queens, is placed on each of the queens in the more than 4,000,000 colonies of bees in this country. The amount invested in bees, hive and honey-house equipment, and the like is $35,000,000 to $50,000,000 on the conservative basis of $8 to $12 per colony. Whether a fair return is being received by the beekeeper on these sums, plus the amount involved for his time and labor, depends primarily on the blood represented by the queen and by the drone with which she mates (fig. 1).

The public is also directly affected by the breeding problem, not merely from the standpoint of being insured an abundant supply of honey, but from the more important standpoint of having bees that will function as efficiently as possible in the pollination of many of our crops. For example, clover crops, which are so fundamental in the dairy and livestock industries, apples and other fruits, and truck crops in greenhouses are now more or less wholly dependent on the efforts of the honeybee. There is interest also in increasing the supply of native beeswax, which at present comes so far short of meeting domestic demands that large quantities are imported annually. The bee is far more valuable to American agriculture through all these other activities than through its honey production. As a matter of fact, the activities of the honeybee are so varied and so useful that practically every person benefits by them in some way or other, and so will benefit, indirectly at least, by any improvements that result from scientific breeding.

Factors Limiting Progress of the Bee Breeder

In spite of its importance, bee breeding is only in its infancy, one reason being that promising methods for mating queens and drones

Several desirable characters have been commonly recognized among the varieties of honeybees used in the apiary, but the breeder during past years has been able to do little in combining these in one bee because in nature queen and drone mate only on the wing. These characters have to do with disease resistance, color of comb cappings, size of body parts, constancy of color markings, disposition, and swarming propensity. Because of recent work that shows the feasibility of accomplishing the insemination of queen bees by laboratory methods, the breeder is now in a position, however, to utilize the characters already available in the germ plasm of bees and to start at once toward the goal of breeding bees better adapted to present agricultural demands. It would be a great and perhaps not impossible achievement to breed a bee with the long tongue of the Caucasian, capable of reaching sources of nectar not now available to most honeybees; the gentleness of the Caucasian and the Carniolan; the white comb capping made by the black bee and the Carniolan; the reduced swarming tendency, and the resistance to common hive enemies and European foulbrood, of the Italian; the uniform marking of the Cyprian, and the industriousness of the Italian or Cyprian.

Fig. 1.—The three inhabitants of the hive; 1st., the queen, a female with completely developed egg-laying organs but with undeveloped secondary sexual characters such as those possessed by the worker for secreting larval food, for gathering nectar and pollen, for secreting wax, and the like; 2nd., the drone, the male bee. During the height of the season, a bee colony may consist of several thousand workers and a few hundred drones, but it normally contains only one queen at any time; 3rd., The worker, a female with arrested development of the egg-laying organs.

under laboratory conditions had not been worked out until within the last few years. Prior to the development in 1923 of the Quinn-Laidlaw technique—discussed later in this article—whereby, through the agency of the operator, the drone organ is everted in proper position in relation to the queen for insemination to take place, and in 1926 of the Watson technique for the artificial insemination of queen bees through the transfer of sperm from drone to queen by means of a microsyringe (fig. 2), the

Figure 2.—L. R. Watson, who developed the Watson method for the artificial insemination of queen bees, seated at his instruments.

bee breeder was forced to trust to luck in his work, because he had to rely on chance natural matings in midair, since in nature the honeybee mates only while on the wing away from the hive. A successful method for obtaining natural matings of queen and drone in confinement still remains to be developed.

Another reason for the backwardness of bee breeding is the fact that only since the application of biometric methods in studying the body parts of individual bees, a development of recent years, has progress been made in working out a method whereby the breeder can readily identify the race or strain with which he is working. Mendel, the father of modern genetics, lacked a means of distinguishing between strains when he endeavored to work out problems of bee genetics in addition to those of the genetics of peas, which brought him fame (9, pp. 142-157).[1]

The first investigator to make a comprehensive biometric study of the honeybee was Kozhevnikov (12), who in 1900 endeavored to separate the various races on the basis of physical measurements made with the aid of a microscope. He included such measurements as hooks on the wing, tongue length, length of leg segments, length of abdominal segments, length of wings, and the like. Since that time Russian investigators have been particularly active in this field.

However, the problem of checking differences between various crosses, strains, and races of the honeybee on the basis of the physical characteristics of individual bees, or even of the productivity of colonies, and then utilizing the results in breeding, is far more complicated than with other farm animals. This is due not only to the small size of the honeybee, but also to the fact that the honeybee productivity represents the collective efforts of the thousands of individuals making up a colony. It is even hard to define a standard colony for purposes of any comparative experiments since, even under the same natural conditions outside the hive, within the hive the physiological ages of the individual bees differ. Furthermore, the honeybee cannot carry on its life functions indefinitely in confinement, as can cattle, poultry, rabbits, or even pigeons.

Advances in scientific bee breeding are also limited by the variety of demands on the breeder. Queens must be reared and tested; drones must be reared; mating of queen and drone must be accomplished; progeny must be tested for colony characteristics and production, as well as for physical characteristics of individuals; and results must be evaluated. The scientific breeder should possess a working knowledge of the biology of the honeybee, including an intimate knowledge of its various races and strains, and of genetics, biometrics, and supplementary fields as well. In short, he should be a combination beekeeper, laboratory technician, biometrician, and geneticist, or know how and where to utilize the services of specialists in the various fields involved.

Another situation faced by the bee breeder is the fact that worker bees cannot be bred, and the queen and drones, mating but once in a lifetime,

[1]Numbers in parenthesis refer to Literature Cited which list will be given in the last article of this series.

(Continued on page 59)

Recent Progress in the Utilization of Honey

C. A. Browne
Bureau of Chemistry and Soils, Washington, D. C.

(Continued from December, 1937)

The Behavior of Different Honeys and Why

The complete solution of honey utilization problems calls for a comprehensive study of the various chemical factors that determine the behavior of various types of honey when they are subjected to conditions comparable with those to which they are subjected in use. This is not always as simple as might appear on first observation. There are many constituents that occur in honey in comparatively small amounts, the identity of which has not yet even been determined. Some of these substances, although occurring in honey only in comparatively small amounts, exert very marked influences on its behavior.

Whereas the gross composition of honeys of various types has been determined quite accurately, comparatively little has been done towards ascertaining the nature and quantities of the less common substances that occur in honey. The limited amount of work that has been done along this line indicates that honeys obtained from different floral sources vary considerably with respect to the quantities of these substances contained therein. Each individual sample of honey is a distinctive product and presents its own distinctive problems.

The Nitrogenous Constituents of Honey

Let us take, for example, the nitrogenous constituents that occur in honey. American honeys contain only very small quantities of nitrogenous substances. Recent work that has been carried out in the Bureau of Chemistry and Soils shows that the nitrogen content varies from slightly less than 0.02% for a very light honey to about 0.2% for a dark type, the darker-colored varieties (such as buckwheat) in general showing higher nitrogen contents than the light-colored varieties.

Now while these figures indicate that the nitrogenous compounds occur in infinitesimal amounts, they nevertheless play a very important role in the behavior of honey. It is seen also that the extreme variation in amounts present in various types of honeys is very great in comparison with the variation that occurs in the quantities of sugars present. As the figures indicate, the darkest honey contains about ten times the quantity present in the lightest.

A further study has been made to gain some insight into the nature of these nitrogenous compounds. They have generally been considered as of protein nature. However, by subjecting honey solutions to ultra-filtration, it has been impossible to separate the proteins present from the other components. We were surprised to find that on an average only about one-third of the nitrogenous components were of protein nature, the remaining portion consisting of comparatively simple substances such as amino acids and related compounds.

Other Compounds in Honey

Compounds such as amino acids are very reactive in the presence of the simple sugars, dextrose and levulose, of which honey mainly consists. On the other hand, they are not reactive towards ordinary cane sugar. The reaction products of the simple sugars and amino acids are dark-colored substances of characteristic odor and taste. This certainly would indicate that these substances are responsible partly at least for the darkening that occurs when honeys are stored for long periods of time, or when they are subjected to heat treatment. It also explains, due to the great variations in quantities of these substances occurring in different floral types of honeys, why so much difference is observed in the behavior of these honeys when they are heated or stored.

It is very enlightening to examine samples of honey after they have been stored for long periods of time. While some keep their appearance and even flavor quite well, others become very dark in color and acquire almost a bitter taste. These same changes can be brought about in a comparatively short period of time by subjecting the honeys to heat treatment.

The same type of amino-acid re-

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ducing-sugar reaction occurs when honey is mixed with peanut butter and other high protein containing foods. These combined honey mixtures, when freshly made, have a pleasant flavor that augured well for their popularity when they were first put on the market. But after a few months the products began to darken, objectionable flavors were produced and as a consequence combinations of this character soon disappeared from the market.

Why Some Honeys Foam

The presence of proteins in honey produces a tendency in the honey to foam, and to formation of surface scum. Since there is great variation in the protein content of honeys derived from various floral sources, we would expect corresponding variations in their tendencies to foam, etc. This actually is the case and can be demonstrated when the various honeys are tested by means of a standard candy test. In this test a certain amount of the honey is mixed with a definite amount of a sugar mixture and cooked to a definite temperature so as to produce a candy. This test brings out very markedly, not only the differences in tendencies of the various types of honey to foam, but also the tendency to darken and caramelize. It was found in this way that nitrogen compounds and other colloidal substances play an important role in foaming and color formation that occur during the cooking process.

These characteristics are, of course, very important when honey is utilized in candy manufacture, in baking, and for other uses where the honey is subjected to heat treatment, and differences in the behavior of various types of honey from this standpoint become an important consideration in selecting the most suitable honey for a particular purpose. There are other points to consider, of course, such as flavor retention, etc.

What of the Future?

What I want to emphasize is that it is possible through application of chemistry research to determine accurately the factors that are responsible for the behavior of various types of honey under various conditions of use. Comparatively little has been done in this direction and much more remains to be done along this line. Such work is by nature slow, and requires patience and perseverance to carry through. In some cases, methods of analysis must be devised in order to determine the quantity of some of these ingredients, since existing methods are not always applicable in the presence of such a high sugar concentration as exists in honey. However, such knowledge once acquired serves as a permanent basis for future understanding and investigation.

Other Substances in Honey

Besides the nitrogenous components of honey that I have dwelt on at some length, there are a number of other substances or groups of substances occurring in honey about which precise chemical information is lacking. There are, for example, the so-called dextrins about which there is comparatively little definite knowledge. These substances occur to greatest extent in the honeydew honeys, and their chemical nature and behavior as well as origin should be ascertained more fully. There has been comparatively little done with respect to obtaining a more definite knowledge of the various enzymes occurring in American honeys. Some of these substances, for instance, invertase and the oxidases, may play a role in utilization of honey for certain purposes as, for example, in candy manufacture and in baking.

Mineral Components Affecting the Acidity of Honey

The mineral components of American honeys are in need of further investigation. We do not know the complete story of the mineral elements of various types of American honeys. Fragmentary information exists relative to the occurrence in honey of certain mineral elements or groups of elements, such as Schuette's work on the iron, copper and manganese contents of American honeys. Work that has been carried out in the Bureau of Chemistry and Soils indicates that the minerals of honey influence the acidity as expressed on the pH scale to a considerable extent. For example, it has been shown that the mineral content of honey affects the degree of acidity (pH) to a greater extent than does the total amount of acid present.

Time does not permit a detailed discussion of the many additional problems that are in need of investigation relative to composition of honey of various floral types in relation to its suitability for various uses. This

information would be of considerable value in earmarking various types of honey which would serve as a guide in choosing the most suitable type of honey for the use for which it is to be put.

Lack of Information on Nectar

The general effect of climatic conditions on the flow of nectar and the quality of honey are known to every beekeeper. There is a great lack of information, however, as to the exact composition of nectar, honeydew and other plant exudations that are gathered by the bee. The old method of percolating a bushel of crushed flowers with water and calling the concentrated extract nectar is exceedingly faulty, for many substances are extracted that do not belong to nectar. What we especially need is an application of the recent methods of microchemical analysis to the pure nectar itself, carefully isolated from surrounding tissues by a skillful plant anatomist. An accurate knowledge of the chemical composition of nectar, at various times and seasons, is basic to further expansion in the chemistry and technology of honey.

Honey in Food Manufacturing

While some progress has been made in the direction of utilizing honey in various food manufacturing industries, for instance, in baking, there are many problems that are in need of investigation before more progress can be made along this line. In confectionery manufacture the principal difficulties are flavor retention, caramelization, frothing, effect on crystallization (influence of certain honey constituents on the type of crystals formed in the candy mass), and the problem of moisture absorption and retention. It is known that certain types of honey withstand heating (less darkening in color) better than others. While in France a few years ago I observed a cheap popular confection in which the unheated honey, without injury to its natural flavor, was enclosed in an impermeable sugary coating, the method being similar to that employed in the manufacture of the much condemned brandy drop. The manufacture of "honey drops" of various types might be worthy of consideration in the United States. In the manufacture of ice cream and ices, the problems are principally suitability of flavor and influence on the texture and consistency of the frozen mass (including influence on the melting point).

It is very probable that honeys of certain types would be quite suitable for use in treating tobacco for the purpose of moisture retention. Honey has been tried by certain breweries, and while satisfactory in some respects, other desired results were not obtained. This is probably due to failure to use honey of the proper type. The rate and character of the fermentation, the effect of the particular honey non-sugar substances on the beer (e.g. influence of proteins and other non-sugars on turbidity and foam characteristics of the beer) are all of importance.

Attractive wines of certain types can be made from honey. There are a number of problems in connection with the utilization of honey for this purpose that require investigation. The preparation of honey vinegar presents problems similar to wine manufacture. Honey intended for vinegar manufacture would generally be confined to lower grades and waste honey. The manufacture of chewing gum also offers possibilities for advantageous use of honey because of its superior ability to retain moisture.

The development of only a part of the potential field of industrial utilization of honey as outlined above would be sufficient to stabilize the beekeeping and honey industry of the United States. This would represent a service to consuming industries in view of the undoubted superiority of honey for certain uses when honeys of suitable types are employed under proper conditions. The need for study is greater in the case of honey than for many similar manufactured products, because of the great variability in composition and behavior of honeys obtained from various floral sources.

Fig Bread Sweetened with Honey

½ cup figs, ½ cup raisins, 2 tbsp. shortening, 1 cup honey, 1 egg, 2½ cups flour, ½ tsp. salt, 1 tsp. baking powder, ¾ cup sweet milk, ¼ cup sour milk, ½ tsp. soda, 1 cup nuts.

Cut raisins and figs in small pieces. Cream together shortening and add honey. Add beaten egg. Sift dry ingredients together. Reserve a little to flour fruit and nuts. Add alternately with milk. Add nuts and fruit. Bake in moderate oven at 325 degrees for one hour and ten minutes.—Recipe furnished by Modern Science Institue Inc., Toledo, Ohio.

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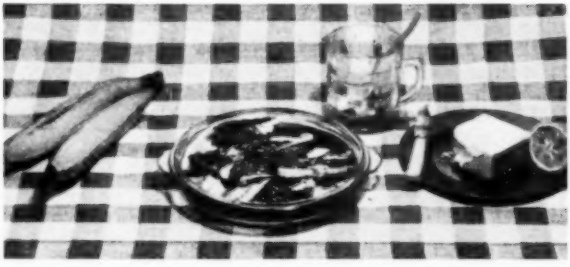
Cranberries Take a Bow

Mrs. Benjamin Nielsen

This Healthful Fruit, Sweetened with Honey, Adds Variety to a Number of Interesting Dishes



The tartness of honey cranberry jelly "does things" for these bananas.

The gay cranberry, blueberry's red cousin, has long been identified with holiday feasting. Usually served in jelly form or a sauce, as an accompaniment to the turkey, it is only recently that this fruit has been definitely established on its merits. Now we find it has invaded the menu from cocktails to desserts.

Did you know cranberries are as good a source of vitamin C as tomatoes and oranges? Vitamin C is that vitamin which prevents scurvy, dread rheumatic pains and tooth decay. With vitamin D it makes stronger bones and teeth. They are a fairly good source of vitamin A, which is very important to growth and maintaining resistance. It protects us against infections of eyes, ears, lungs, sinus and glands. These berries contain some of the minerals which help to keep the body fluid in the alkaline balance so necessary for health. However, unlike most other fruits, they contain a substance which gives a slight acid reaction the same as meats and sugars do.

Cranberry Honey Cocktail

Combined with honey these health-giving berries are a double health promoter. Here is a cocktail both grownups and children will enjoy. Cook 2 cups of cranberries and 4 cloves in 2 cups of water until the berries burst, about 5 minutes. Strain through cheesecloth. Add honey to taste and stir over low heat until the honey is dissolved. Cool. Add one cup pineapple juice and 2 tablespoons lemon juice. Pour over crushed ice in tall glasses and garnish with maraschino cherries cut in circles. Gingerale or orange juice may be added for variety.

Canned Cranberries

If you would have cranberries long after they are offered on the markets plan to can them for next spring and summer use. Allow 2 cups of water to four cups of berries and ½ to 1 cup of honey, depending upon how sweet you wish the sauce. Wash the berries, put into the boiling water and boil gently until they stop popping. Add honey just before removing from the fire and stir until it is dissolved. Pour into sterilized jars and seal at once with sterilized lids.

Cranberry Jelly

You will like the delightful flavor, the sparkling color and quivering tenderness of cranberry jelly made with honey. To 4 cups of cranberries allow 2 cups of water. Wash berries, add water, and cook until tender. Drain through cheesecloth. Measure juice and for each cup of juice allow ¼ cup honey and ½ cup sugar. Heat juice to boiling point, add honey and sugar and boil until it sheets off the edge of the spoon. This will require very little time as the cranberries are quite rich in the jelly substance, pectin.

Cranberries with Ham

For cranberry ham slices you will need: Three cups of cranberries, 1½ cups honey, 1 tablespoon whole cloves, and 2 slices of ham, ¾ to 1 inch thick.

Gash edges of fat on ham. Place one slice in baking dish. Mix cranberries and honey. Spread center of the ham with the honey and cranberry mixture. Top with the second slice. Cover with remaining cranberry and honey mixture. Garnish with the whole cloves. Cover and bake until done (1½ to 2 hours) in a moderate oven,

basting occasionally with the liquid in the dish.

Cranberry Relish

With the meat course the traditional quickly cooked cranberry sauce is popular, but why not try this delicious uncooked honey cranberry relish for a change? Assemble 4 cups of raw cranberries, 2 oranges and 1½ cups of honey.

Chop the cranberries coarsely or run them through a food chopper, using the coarsest knife. Pare the oranges with a sharp knife, trimming off the white membrane carefully. Put the orange pulp, with seeds removed, through the food chopper, also the orange rind after removing all the white part. The white parts impart a bitter flavor which is most undesirable. Mix cranberries, oranges and honey and allow to stand several hours before serving. This relish keeps indefinitely as the honey is a conservative.

Honey Cranberry Conserve

This is an easily made delicacy you will like to have on hand. For it you will need: One quart of cranberries (4 cups) 2½ cups honey, ½ cup of orange juice, the grated rind of one orange, 1 cup chopped nutmeats and 1 cup of chopped raisins.

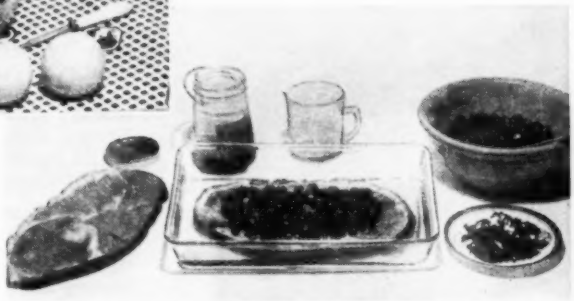
Wash the cranberries and run them through the food chopper. Combine all ingredients and mix well. This, too, may be kept indefinitely, its flavor improving with age.

Bananas with Cranberry Glaze

Every homemaker likes to have a number of delicious, easily prepared recipes for desserts. Bananas with Cranberry Glaze is just such a recipe. It is as appealing to the eye as it is pleasing to the taste. Use 3 bananas, ½ cup honey cranberry jelly, ¼ cup hot water, lemon juice, and butter.

Split the bananas lengthwise, place in a baking dish; sprinkle with lemon juice and dot with butter. Combine the honey cranberry jelly with the hot water, mix well and pour over the bananas in the baking dish. Bake for 30 minutes in a moderate, 325 degree F. oven, basting occasionally, Serve plain or with a dash of whipped cream slightly sweetened with honey.

Honey cranberry relish will keep indefinitely, for the honey is a conservative.



Delightfully flavored cranberry ham slices are sure to be approved by family and guest.

Honey Cranberry Torte

A bit more elaborate but very much worth the extra effort is Cranberry Torte. Assemble: Four eggs, ½ cup sugar, 3 tablespoons honey, ½ cup water, 1 cup sifted flour, 2 teaspoons baking powder, ¼ teaspoon salt, the grated rind of ½ lemon, 1 cup of dates, sliced and 1 cup of chopped nutmeats.

Beat the egg yolks and sugar until light. Add honey gradually, beating well, and then add the water. Sift flour, salt, and baking powder together, add the dates, lemon rind, and nutmeats; stir into egg and honey mixture. Fold in the stiffly beaten egg whites. Bake in two layers in a 375 degree F, oven. When cold spread

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The Washington Meeting

(Continued from Dec., 1937, issue)

In the previous issue we mentioned some of the highlights of the International Bee Meeting held October 25 to 27 in Washington, D. C. We now continue where we left off,—the middle of the forenoon of the second day when E. S. Prevost of South Carolina, President of the Southern Beekeepers' Conference, occupied the chair. The chairman presented Dr. Eugene C. Auchter, of the Bureau of Plant Industry, who spoke on "The Importance of Pollination in Fruit Yields" and made us realize more than ever before how dependant the fruit grower is on bees for pollination, also the importance of having orchards properly planned, with pollinating varieties interplanted to insure proper setting. Beekeepers may not realize that bees are ten times more valuable as pollinators than they are as honey gatherers. The blossoms need the bees even more than the bees need the blossoms.

Henry Brown of Cape May, N. J., pouring bees from a box on to his head.

E. C. Martin of the Ontario Agricultural College at Guelph, presented a paper on "The Possibilities of Pollen as a Hay Fever Preventative," the gist of which was that recent scientific work shows that honeys containing the pollens of oak, elm, willow and goldenrod might prove beneficial to persons suffering from hay fever caused by these pollens, but are of doubtful value.

The President of the Louisiana Beekeepers' Association, Geo. W. Bohne, in his talk on, "Analyzing This Business of Ours" said, that in his opinion, moving bees South for increase is a doubtful venture, also that the package men of the South are making an honest effort to serve the North. Mr. Bohne was honored by being chosen a life member of the American Honey Producers' League.

National Ladies' Auxiliary

This splendid organization met under the auspices of the American Honey Institute in the mezzanine parlor during the forenoon of the second day. In the absence of the National chairman, Mrs. Ethel Krebs, Sacramento, Calif., Mrs. Malitta Jensen, of the Institute, was asked to take the

The five girls from Norristown, Pa., all set for their live bee demonstration.

E. R. in one of his favorite poses.

chair. Mrs. Florence Bennett, Birkenfeld, Oregon, Secretary and Treasurer, gave a detailed report of the activities during the past year. This organization is doing good work in popularizing honey, especially in the home. Dr. Bodog F. Beck of New York City, also Miss Annette Snapper of Milwaukee, Wisc., appeared on this program.

Live Bee Demonstrations

Perhaps the most popular event of the Convention was the Bee Demonstration held in back of the White House at 12:30 of the second day. E. R. Root of Medina, Ohio, and Henry Brown, of Cape May, N. J., captivated the crowd with their bee stunts. E. R. put bees (that would sting a battleship), in his bonnet and Henry put his gentle bees in his mouth. A team of five girls from Norristown, Pa., dressed in shorts, demonstrated to hundreds of people outside the ropes that they were not afraid of live bees. A large battery of cameras were aimed at the actors. At least some of the Washingtonians were convinced that, after all, bees are not so vicious as they may appear to be. This demonstration helped to focus the attention of the public on our industry, and the publicity given it by the press and motion pictures has also helped.

Sightseeing

The afternoon of the second day was taken up mainly with visiting places of interest. Some groups of beekeepers visited the Bee Culture Laboratory at Beltsville, Md., to see the scientific equipment, the library, and apiary in charge of Jas. I. Hambleton.

The Banquet

Possibly the crowning event of the entire conference was the banquet on Tuesday evening. Almost 400 people assembled around the tables to enjoy the food and fellowship. The jovial toastmaster, Prof. J. M. Robinson of Auburn, Ala., was, as usual, equal to the occasion and in his inimmitable manner presented the outstanding guests. The first main speaker of the evening was Dr. E. F. Phillips, Professor of Apiculture, Cornell University, who spoke on "Trends in American Beekeeping", in which he reviewed the outstanding developments in the different eras through which beekeeping has passed.

The guest speaker of the evening, Dr. Bodog F. Beck, of New York City, was next presented. Dr. Beck is a practicing physician who has traveled widely. Some years ago he became interested in bee venom as a cure for rheumatism and arthritis and has since devoted himself to this work, maintaining an office in New York City where he has built up a large practice. His recent book, "Bee Venom Therapy" contains truths that the world should know. Dr. Beck has just finished another book, "Honey, Its History and Uses" which will be ready for distribution shortly.

Dr. Beck's talk on "Bees and Mankind" was illustrated with a rare collection of pictures dealing with the

Mrs. E. F. Phillips and Dr. Bodog F. Beck talking it over during the banquet.

mythology of the honeybee, which emphasized the fact that beekeeping is as old as civilization itself.

Institute Day

Russell H. Kelty, President of the American Honey Institute, opened the session with an inspiring talk on the possibilities of our industry. It does seem as though we have not yet scratched the surface of beekeeping.

The Institute was well represented by Prof. H. F. Wilson, Mrs. Malitta F. Jensen, Miss Mercedes Cranston, and Miss Willah Goodman.

The afternoon session was presided over by E. T. Cary, of Syracuse, N. Y. The chairman presented Harold J. Clay, Marketing Specialist of the Bureau of Agricultural Economics, who gave us a picture of crop conditions over the country and methods of securing data.

One of the most inspiring and instructive talks of the conference was given by Miss Annette Snapper, Director of Consumer Education for Premier-Pabst Corporation, Milwaukee, Wisc. Miss Snapper said that some have criticized the name "Institute." "The name is nothing," said

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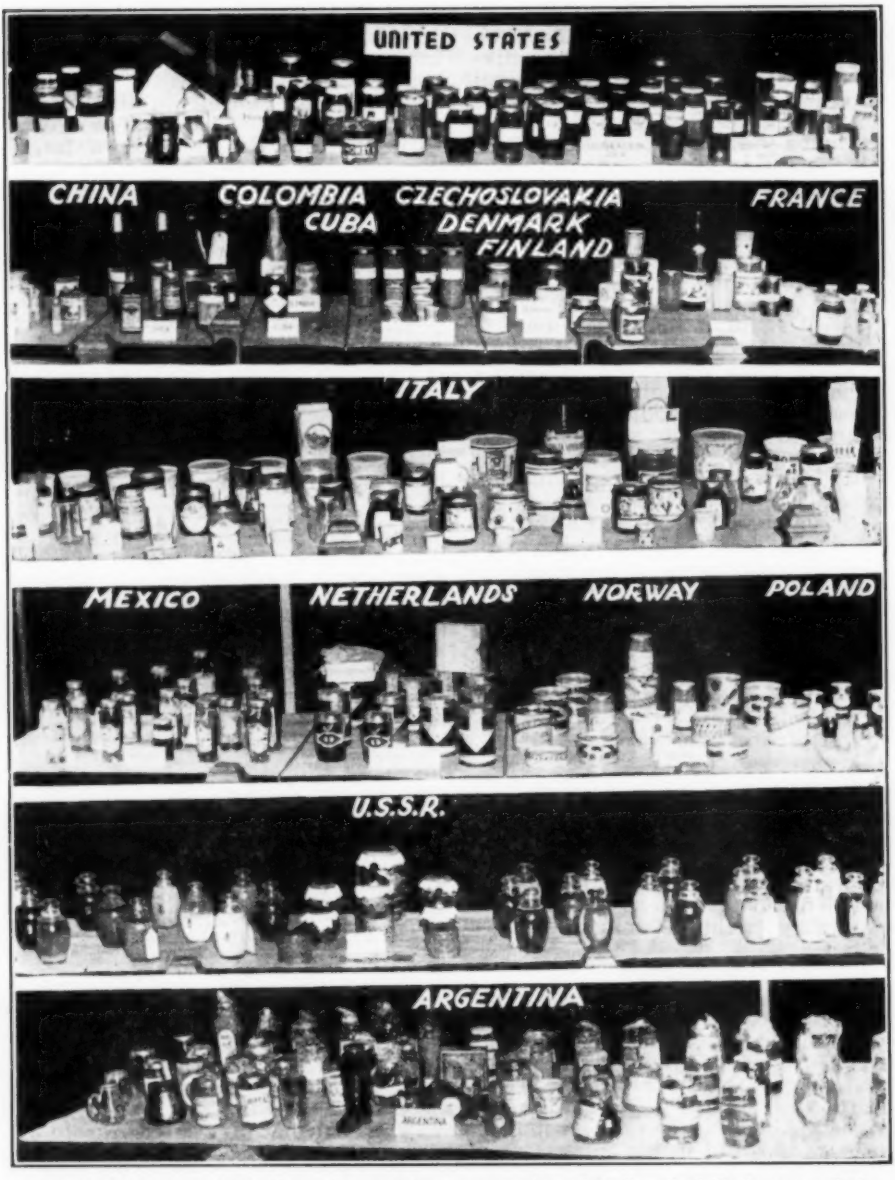

A part of the honey exhibits from 47 countries, representing virtually all of the honey producing countries of the world. Note the many unusual types of honey packages and labels. Honeys from America ranged in color from the water white fireweed honey of Washington to the buckwheat honey of the Eastern states.

Miss Snapper. "It is what it does that counts." She fears the Institute may be sliding backward due to the lack of funds. Miss Snapper says people are not interested in the scientific side of honey. They want to know how to use it. She would put a recipe on the back of each bottle; one simple recipe showing how to use it. She feels that the "good taste" argument is worth more than all the others put together.

According to W. E. Braithwaite, Division of Simplified Practice, National Bureau of Standards, 65 sizes

Top: A long view of the honey exhibits in one of the wings of the Hall of Nations.
Center: The audience at attention during one of the sessions held in the Hall of Nations.
Bottom: Mrs. Malitta Jensen talking to the women at the Ladies' Auxiliary meeting.

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and types of containers have been found in use for honey. In the majority of instances there are a few sizes and types that predominate. The glass jars recommended are 5, 8, 16, 24, 32 and 48 oz. and in tin the sizes are 2½, 5, 10 and 60 lbs. He advocated reducing the number and variety of containers. He said, "Goods well packaged are half sold".

Dr. R. E. Lothrop, Honey Specialist, Bureau of Chemistry and Soils, showed some very interesting slides giving the quantities of honey used in loaves of bread. The work being done by Dr. Lothrop should increase the volume of honey used by commercial bakeries.

Honey Exhibit from 47 Countries

To say the exhibit of honeys in the left wing of the Hall of Nations was interesting, is putting it mildly. It was educational as well. Each exhibit had its individual characteristic. Each type of containers and labels was different from the others. And the varying colors, ranging from water white to jet black were a source of wonder. Had it been possible to sample all of the honeys, what a variety of flavors would have been found. There is something alluring about honeys of different flavors and colors from all over the world. We are deeply indebted to Dr. Lothrop and Harold J. Clay for the assembly of the marvelous display of honeys, photographs, and literature from various countries.

W. S. Frisbie, chairman of Food Standards Committee, Food and Drug Administration, U. S. Department of Agriculture, gave a splendid talk on "Honey in Food from the Standpoint of Federal Food and Drugs Act," which, unfortunately, the writer did not hear. We shall try to have this talk, or a brief of it, appear in a future issue.

The Institute Exhibits

The cookery contest entries, also displays from the American Honey Institute in the left wing of the Hall, were in charge of Mrs. Jensen, Director of Consumer Education. This was the fourth National Honey Cookery contest.

New Officers Elected for 1938

American Honey Producers' League: President, W. E. Harrell, Hayneville, Alabama; Vice President, Oscar Schmidt, Michigan; Secretary-Treasurer, R. E. Foster, Gainesville, Fla.

A battery of moving picture cameras turned on the live bee demonstrators.

Southern Beekeepers' Conference: President, L. M. Dewey, Florida; Vice President, M. S. Fortune, Mississippi; Secretary-Treasurer, A. V. Dowling, Georgia. The next meeting place of this Conference is Charleston, South Carolina, the date to be announced later.

Apiary Inspectors of America: President, J. E. Starkey, of Indiana; Vice President, H. M. Krebs of California; Secretary-Treasurer, Clay Lyle, of Mississippi.

At none of the previous International meetings have there been so many scientific men on the program as appeared at this meeting. The meeting place, our nation's capital, made it easier to have an unusual array of talent. It was good to mingle with these speakers. We found them quite human and easy to approach.

Jas. I. Hambleton, always in the background, but a worker, was really the Generalissimo of the big meeting yet did not appear on the program.

After all, these international meetings are very much worth while. They bring all bee organizations together. They serve as a clearing house to iron out any possible differences of opinion on matters pertaining to our industry. Beekeepers have a chance to exchange experiences and opinions, also to become better acquainted. This promotes a greater tolerance for the viewpoints of others.

All organizations connected with beekeeping must continue to coordinate their efforts for the furtherance of the best interests of beekeeping.

The next international beekeepers' meeting will be held in New Orleans, La., the date to be announced later.

The Toronto Bee Convention

M. J. Deyell

This beekeepers' meeting, held November 23 to 25, was well attended. In fact, the Blue Room on the 17th floor of the King Edward Hotel was over-crowded.

All sessions were filled with worthwhile discussions. The thing I like about Ontario meetings is that time is given after each talk for a general discussion. Often-times some valuable ideas come out of discussions. In some instances a fellow on the side lines who isn't scheduled for a talk may, during the discussion period, lossen up and perhaps make a more worthwhile contribution to the topic under discussion than the main speaker. Such discussions should be encouraged.

It was impossible to attend all of the sessions, and so I shall mention only a few high lights of the meeting.

Supersedure of Queens in Packages

The percentage of queens shipped with packages and superseded soon after beginning to lay, appears to be rather high in Ontario, in fact too high for beekeepers who are interested in profitable returns on their investments. Southern shippers are anxious to give satisfaction and are trying to find the solution to this problem. Various theories with reference to early supersedure have been advanced, none of which have as yet been proven or disproven. It seems reasonable to assume that the Southern States Field Station at Baton Rouge, now working on this problem, may find an answer in the near future.

Top Winter Entrance

This is a favorite topic in Canada as well as in U. S. A. W. A. Chrysler of Chatham, Ontario, in his opening remarks on this subject, asked this question,—"Have we been wintering bees upside down?" He then told of one old hive with holes in the cover that had carried a colony through a long period of years, when colonies in other supposedly better hives in the same apiary had died.

The general consenus of opinion among Ontario beekeepers sems to be that top winter entrances, properly constructed are advantageous in that they carry off moisture and keep the combs dry.

C. B. Gooderham, Dominion Apiarist, reviewed the literature and history of the top entrance hive and showed that this is not a new thing. It has been used in Europe. The present top winter entrance is as yet in

(Continued on page 58)

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A Dry Heating Chamber

Edwin J. Anderson, Bee Specialist, State College, Pa.

It Liquefies Granulated Honey; Also Melts Cappings

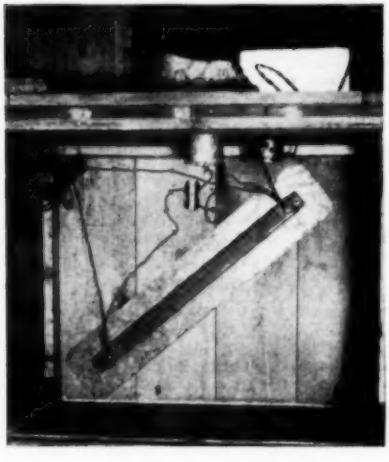
The bottling of honey on a small scale is often accompanied with a great deal of mess and inconvenience much to the annoyance of the beekeeper. If the work is done in the home it will be often to the added annoyance of the rest of the family which may result in some justified opposition from this part of the family. The final outcome often is slackening of interest in beekeeping or the abandonment of the bees as a source of income.

This is an unfortunate situation from the standpoint of the beekeeping industry as a whole since a great deal of honey can be sold locally by those beekeepers who can properly bottle and market a good product. This type of trade not only reaches many consumers who would not be reached otherwise, but it also withdraws large quantities of honey from the commercial channels and thereby does a great deal to stabilize the honey market.

The equipment which is described in the following paragraphs is a dry chamber that can be used to liquefy honey in bottles or cans without damage to the cans or labels, or it will heat honey in a fairly large container or tank for bottling. The chamber is also used to render beeswax from cappings so as to produce a very high quality of wax. The size of the chamber may be adjusted to meet the needs of the individual beekeeper. Honey heated in this chamber is heated slowly as compared to honey heated by contact with a hot water or steam jacketed tank, but this difference is not serious since the chamber requires no special attention during the time the honey is being heated. In the chamber shown in the accompanying pictures electricity is used as the medium for supplying the heat but it would be entirely possible to use either a hot water or a steam radiator instead of the electric units described. If a radiator were used the chamber would have to be deeper to allow for the greater depth of the radiator. Temperature control is more difficult when hot water or steam is used. When electric units are used a thermostate controls the temperature.

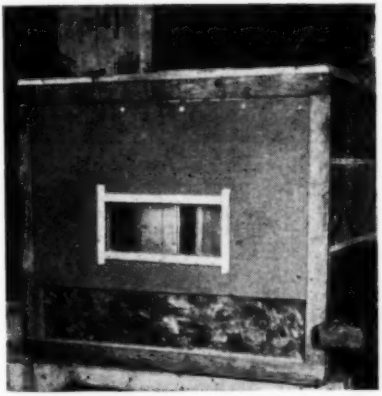
This chamber is an insulated box which will hold 120 to 150 pounds of honey in bottles, 2 sixty-pound cans, or a tank to liquefy 125 pounds of honey for bottling. It will take a sufficient amount of cappings to render from 6 to 12 pounds of beeswax at one running.

The chamber is a wooden box 22 inches deep, 30 inches long by 28 inches high inside measure.

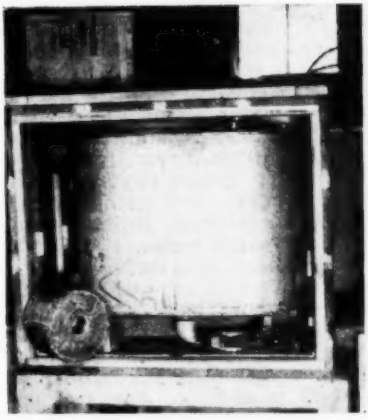


No. 1. The heating unit, the electric fan and the thermostate as well as the funnel are shown. The baffle board has been removed.

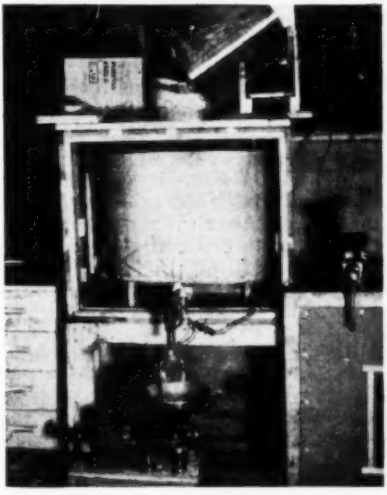
No. 2. Two sixty-pound cans ready to be liquefied.



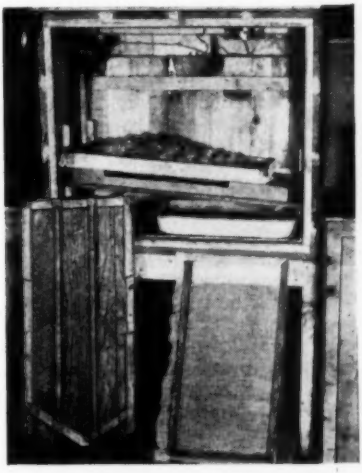
No. 3. The chamber is closed and in operation with two sixty-pound cans partly visible through the double glass window.



No. 4. The strainer has been removed from the tank and is shown in the lower left corner of the chamber. The honey gate is folded back underneath the tank so the door can be closed for heating.



No. 5. This picture shows the empty sixty-pound can in position on top of the chamber, the tank, and the scales with the automatic shut off for filling bottles.



No. 6. One tray full of cappings is in place in the chamber, the other is out in front so as to show the construction.

Plan of Construction

A frame with the inside measurement given above is made from ¾x3 inch white pine and to this is nailed ¾ inch tongue and groove material cut the right length. Care is taken that all parts are square before they are nailed together. The front is left open for a door. A frame of ¾x3 inch material is made for the door. This frame is made so it fits snugly into the open side of the box. Then the boards are nailed to it the same as for the chamber itself, except that they extend 1 10/16 of an inch beyond the frame on all sides. The heating unit is placed in the rear one and one-half inches from the wall of the chamber with porcelain insulators or a small piece of iron pipe between the unit and the wall of the chamber. A baffle board is then placed one inch in front of the heating unit. A space of four inches is left between the top of the baffle board and the top of the chamber and similar space is left at the bottom of the baffle board. This space permits a circulation of air over the heating unit but does not let the di-

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rect heat strike the containers of honey. Galvanized sheet iron is placed on both sides of the heating unit. One piece is nailed behind the heating units to cover the entire back of the chamber; a second piece is nailed one-half inch in front of the one on the wall. This piece should extend at least eight inches beyond the unit in all directions, and provides a double air space between the unit and the wall. A third piece is nailed on the baffle board. The baffle board can be either asbestos or wood. If it is wood there should be a second piece of sheet iron with a half-inch space between the two the same as on the back of the chamber. A small electric fan is placed in one end of the chamber and as near the top as possible. The fan produces a circulation of air, otherwise the hot air will remain at the top and there will be a difference of temperature between the top and bottom amounting to at least 30° F. An electric thermostat is placed in the top of the chamber so as to hold the temperature at any desired point. The thermostat shown in the picture was taken from an old Westinghouse stove; however, new ones may be purchased from electric supply dealers. The electrical wiring of this chamber should be done by a qualified electrician so as to prevent any danger from fire hazard.

If bottles are to be liquefied they are placed on shelves made of slats ¾ inch square. The slats are nailed ¾ inch apart so as to permit a free circulation of air. The shelves are spaced according to the size of bottles or cans used. When sixty-pound cans or a liquefying tank are put in the chamber they are placed on a simple stand made from one lengthwise piece and two cross strips of wood. This stand is 4 inches high. It is 24 inches long and 12½ inches wide with a groove cut out of the bottom of the end of one cross strip to make space for the honey gate. The sixty-pound cans of crystallized honey are placed in the chamber and heated to about 130°F. The honey should be stirred in the cans with a heavy wire after it has heated for about six hours so as to mix the liquid with the crystallized honey. After the honey in the cans is properly heated the cans are removed. The tank is then put in the chamber and the honey is poured through a large funnel 9 inches long, 7 inches wide, and 6 inches deep, the outlet of which fits through a three inch opening in the top of the chamber. A tray is made to hold the sixty-pound can while the honey is being poured out. The can fits tightly into one end of the funnel. This is essential, otherwise the warm honey will flow over the sides and spill out onto the top of the chamber when the cans are opened. When the sixty-pound cans are filled for heating in this chamber they should not be made entirely full but a little space should be left to allow for the expansion of the honey upon heating.

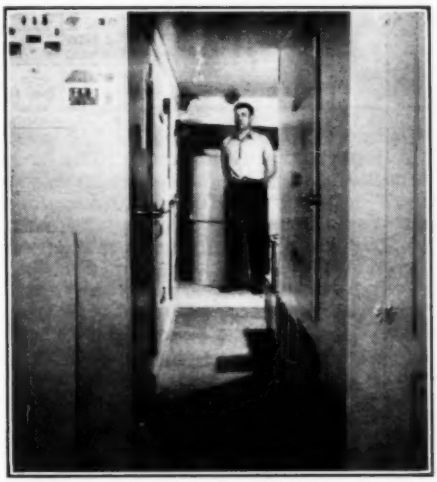
An automatic shut-off has been fitted to the honey gate so that when a bottle or can is filled the scales will make an electrical contact and a magnet releases the lever holding the honey gate open. The spring in the honey gate causes it to close instantly. With this arrangement bottles or pails are filled quickly and accurately. The honey gate slides back under the tank while the honey is being heated. The honey must be heated to at least 135°F. if it is to flow freely through the gate.

The honey in the tank should be stirred once or twice during the heating. This is done by inserting a clean stick through the opening in the top of the chamber. When the honey is heated to the desired temperature the bottles are filled.

Another excellent way to handle the honey is to strain it thoroughly at the time of extracting and place it in bottles instead of sixty-pound cans. The bottles are then placed in the chamber and liquefied just before they are sold. If greater speed is desired in heating honey, the honey in 60-pound cans may be heated to 120 or 130° Fahrenheit in the dry chamber when it can be poured into a tank with a water jacket heated with steam or hot water.

To Melt Cappings

When cappings are to be melted they are placed in two trays as shown in the photograph. The lower part of each tray is made of thin tongue and groove material with a frame around the edge ½ inch high. The upper part of the tray is a frame of wood two inches deep with a lot of small nails driven into it from the outside. Cheesecloth is fastened to this frame and it is filled with the cappings and placed on the lower part of the tray. The tray and cheesecloth should be thoroughly dampened before cappings are placed in them. There



No. 7 A series of dry heating chambers built by Roy Howell, of Monroe County, Pa.

should be a free circulation of hot air on all sides and bottom of that part of the tray which holds the cappings. The wax and honey melt and run from the trays into an agate iron pan below. The slope of the tray is about one inch per foot. The trays are about 30¼ inches long and 14 inches wide over all. The wax does not come in contact with iron or other metal and is therefore a bright yellow in color and of high quality. It is better to extract the honey from the cappings in the extractor with centrifugal power before they are placed in the trays. This will give the tray a greater capacity for beeswax. The honey obtained from the melted cappings will be thicker than before since there is some evaporation in the chamber. This honey is saved and can be used or sold for baking purposes. It is slightly thicker than before it was put in the oven.

The blocks on which the ends of the trays rest are removable so they can be taken out of the chamber when the shelves for bottles are to be used.

The chamber is insulated on top of the boards with a layer of aluminum insulating material and also a layer of cellotex or pressed cork ½ of an inch thick. Other types of insulating materials may be used. The unit for heating is a strip heating unit using 500 watts. When the cost of the electric current is 2 cents a kilowatt hour it requires a little over one cent an hour to run the chamber. A strainer made of 50-mesh wire cloth is placed over the opening in the bottom of the tank so there is no possible danger of particles getting into the honey. This strainer is six inches in diameter and four inches deep. The opening in the strainer screws over $\frac{3}{16}$ of an inch of threaded pipe which extends through the bottom of the tank.

Garnet Gillan in Franklin County, Pennsylvania, built one of these chambers recently and covered it with pressed asbestos, thereby making it 100 per cent fireproof. This type of dry chamber is slow but has advantages in that it protects the containers while heating and produces a high quality of beeswax without the loss of honey. From 10 to 14 hours will normally be required to run a batch of crystallized honey from sixty-pound cans to bottles.

Photograph No. 7 shows a series of dry heating chambers built recently by Roy Howell of Monroe County. The chamber on the right will heat one and one-half tons of honey in sixty-pound cans for bottling. The chambers on the left are constant temperature chambers for storing the honey. These large chambers are insulated with 3¾ inches of rock wool and require much stronger units on a 220 volt line. The units are insulated from the wooden walls with three inches of rock wool and have two air spaces on either side of the units.

A small back lot apiary in Massachusetts. There are thousands of such apiaries throughout the country from which owners derive both pleasure and profit.

XUM

From the Field of Experience

A CHEAP, EFFICIENT BEE FEEDER

C. H. Gilbert

Every spring when packages arrive from the South, feeding sugar syrup presents a real problem. The past spring was unusually late, and considerable feeding was required. When a large number of packages are purchased, the cost of feeders is considerable.

In an effort to reduce this cost, I decided, if possible, to make a feeder using tin cans discarded by the University boarding house. The resulting feeder was so inexpensive and generally satisfactory that a description may be of value to others.

The cans (No. 10 short gallon) with tops completely cut away are nailed to ⅜" box boards or lathe, the boards, having been previously cut the same length as the top bar of a standard frame. The feeder, when in place, is suspended upon the rabbets of a standard full-depth hive body. In order to make the bottom of the feeder air tight, so a vacuum will be formed when inverted, the nail heads are covered with solder. When the feeder is filled with syrup, a cloth is tied securely over the top. See Fig. 1.

The cloth should be of finer mesh than ordinary cheesecloth. The material of which the white, inner sugar sack is made was found to be very satisfactory, when syrup 2 parts sugar to 1 of water by volume was used. A finer mesh cloth can be used for thin syrup.

In order to prevent excess drip when the feeder is first inverted, the can should be level full before the cloth is tied in place, and the cloth should be saturated with syrup. This precaution prevents the air from rushing in, and a vacuum is formed more readily. If the feeder is not level full and the cloth saturated, considerable syrup will run out.

One thickness of cloth is all that is required. Bees cannot empty the feeder, if more than one thickness of cloth is used. When the feeder is ready, it should be inverted over a pail, held there a moment, and then placed in the hive.

There are several advantages to this feeder:

1. It is inexpensive. Cans may be secured at no cost, and old scrap boards can be used for supports.

2. Robbing is reduced to a minimum. The feeder is filled and inverted over a container and there is no

Fig. 1.
Pails filled with syrup, and having one thickness of fine cheesecloth tied securely over the tops, ready for feeding.

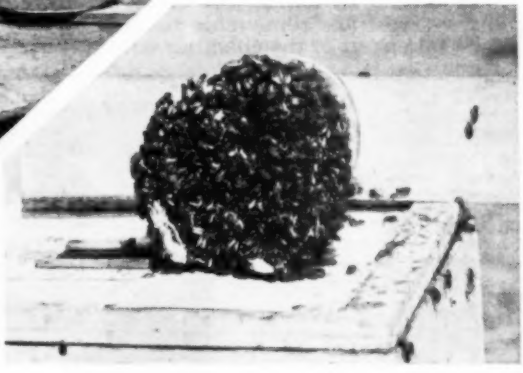


Fig. 2.
This pail is placed on its side temporarily to show how bees cluster on the cheesecloth.

waste or spilled syrup to attract robbers. There is no drip after the feeder is in place, and the hive need not be level.

3. Syrup can be taken by the bees very rapidly. When the feeder is suspended in the hive the entire cloth surface is exposed to bees. In Fig. 2 bees are shown clustered on the cloth. Two double feeders (Fig. 1) may be used in a single hive body, if desired.

4. The feeder can be used over an open inner cover or directly over the combs. It can be placed in an empty hive body or just enough frames can be removed to make room.

A fairly heavy syrup should be fed, regardless of the type of feeder used. Colonies need not be fed as often when a heavy syrup is used. This saves considerable time, and colonies need not be disturbed as frequently. Water should always be available in or near the apiary, and, if required, can be secured by the bees easier and cheaper than it can be supplied in thin sugar syrup.

Laramie, Wyo.

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COOPERATION NEEDED AMONG BEEKEEPERS

H. G. Brink

I have no claim to long experience in beekeeping. I am only a helper to a beekeeper of twenty years experience who has enjoyed that association with bees. But, I believe, I can tell of the problems associated with selling honey in this locality at a profit to the producer.

We are located in a part of this country in which, unfortunately, there exists only a demand for honey during the Christmas season. We, of course, do sell some honey to summer boarders or a few of our old customers, but, not any great quantity.

We can sell all of our surplus to a chain store which offers at this writing, March 31, 1937, 40c per 5-lb. pail of dark honey and 45c for choice clover. We cannot sell our honey for this price. Yet, the manager of this establishment declares he has no difficulty in supplying his customers. The chain store is supplied by a man in another county who has only a few colonies and buys most of his honey. If he can sell honey for these prices what does he pay the producer? What can we do about this problem? Some of you will say; refuse to sell at this price, others will say put them out of business by selling at the same prices. I believe we lose in both cases.

Closer **cooperation** between beekeepers is the only solution as I see it. But, beekeepers, like farmers, seem to be an easy lot who are easily mislead. Then, they don't seem to stick to their word after they are associated. Some of our leading beekeepers have raved about underselling each other, especially during bee meetings, and then go out and cut each other's throats.

Perhaps this problem is just local but, I believe, according to the price of honey, that it concerns nearly all beekeepers.

This problem must be solved or we will cease to exist as profit-making beekeepers. Beekeepers are fighting when they should be discussing their problems amicably.

Glasco, N. Y.

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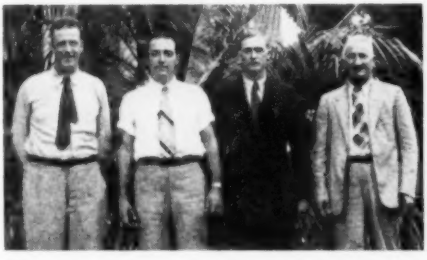
BEE INSPECTION WORK IN GEORGIA

M. S. Yeomans
State Entomologist for Georgia.

Your subscribers may be interested in the result of the work of the bee inspectors here in Georgia during the last season. Therefore, I give you the following:

Section	No. of Col. Inspected	No. of Col. Infected with AFB	No. of Col. Infected with EFB
1	798		
2	4200	92	1
3	2101	104	4
4	1893	9	
5	31566	48	494
6	16932	129	86
Bee Shippers	30957	9	222
Honey Producers	26533	373	363
Total for State	57490	382	585

The 57490 colonies listed as being inspected were **actually** inspected. All colonies found to be infected with American foulbrood were burned by



Georgia bee inspectors. Left of right: A. V. Dowling, Valdosta; W. B. Cash, Bogart; T. H. Forx, Odum; S. V. Brown, Boxley.

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the inspectors. All colonies found to be infected with European foulbrood were requeened. All yards in which colonies were found to be infected with either American foulbrood or European foulbrood were placed under quarantine and this quarantine was not lifted until the inspectors determined by actual inspection that there were no other colonies in that yard infected with either American foulbrood or European foulbrood.

We were not able to put all the bee inspectors in the field as early as we would have liked, due to lack of funds. However, this situation was remedied by the last session of the General Assembly which made an appropriation of $10,000 for bee inspection work. This appropriation was made due to the efforts of the bee shippers and honey producers of this State.

This is just another indication to me that when the beekeepers of any given state are thoroughly organized and when they present in the proper way their arguments to the members of the Legislature, they get favorable results. As a general rule, the members of any Legislature will give more serious consideration to the arguments presented by the people affected than when the same arguments are presented by the state officials for some times the members of the various state legislatures have the idea that the state officials are merely asking for additional appropriations in order to build up their organizations. I know from my contacts that officials of the various states in the Union, as a general rule, do not ask for appropriations merely to build up their organizations but are absolutely sincere when they ask for additional money and that they do not ask for more money until they are able to present facts which are based entirely upon proven facts to back up their requests.

In other words, I see no reason why the beekeepers of any given state, if they are properly organized, cannot secure funds to give the organization in the state sufficient money to give every state an adequate inspection force.

The state officials charged with the responsibility of enforcing the bee disease laws in the several states, of course, should cooperate with those interested in the production of honey and the shipping of bees.

Atlanta, Ga.

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BEES KEEP HONEY AT HOME

Clarence J. Tontz

It is astonishing to what extremes bees will go to benefit the colony. I have in mind an incident that occurred one day in the apiary last summer.

We were taking off deep supers of honey for extracting and stacking them up on the ground. We depended only on our smokers to drive down the bees and, consequently, a good number remained in each super. Some of the supers were slightly warped and did not fit tightly. The cracks were not quite large enough to permit the bees to pass through, but soon we noticed a good many bees clustering about them. We investigated. In some of the cracks I had occasion to view the bees plainly. The

Georgia State meeting, Moultrie, Sept. 16-17. See page 633, October number. In Georgia the annual meeting is in the summer or early fall and a good attendance is always certain. The program is much like that of a winter meeting in the North.

inside bees, shut up with huge heavy combs of delicious honey on which they could gorge themselves and remain idle if they chose, were busily passing it out to their comrades outside, who in turn carried it back to their hives.

I wondered as I watched two Caucasian bees, one inside and one outside, with their tongues joined, making the transfer, if they belonged to the same hive or if the imprisoned bees gave freely to all comers from different colonies. As I was pondering this, I spied an Italian worker, with bright yellow bands, receiving a "hand-out" from a dark Caucasian on the inside.

This particular apiary was made up largely of pure Caucasians. There were a few Italian colonies. But they were not mixed.

Under different circumstances were this particular super of honey back on its rightful hive and should this particular Italian bee, or any bee from any other hive for that matter, come seeking honey, one can readily believe that this Caucasian bee would play quite a different role. She would fight to the death to protect this hoard of honey.

But now, perhaps she would rather the bees had it (even her enemies) than man who disorganizes the guards and freely invades her castle.

Crescent, Okla.

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SOME THOUGHTS ON PAST ARTICLES

Kenneth Francisco

The article by F. H. Foster appearing in the November, 1937, issue, regarding the perpetuation of non-resistant strains of bees when the queen of an AFB colony is saved certainly appeals to reason when we think the matter over. The fact that the colony has AFB should be sufficient to class it as lacking in resistance and calls for the removal of that queen from the apiary if the beekeeper wishes to maintain a maximum of resistance to AFB infection in his bees.

Mr. Foster's analogy comparing the colony of bees to the human body brings to mind a fact that appears evident from reading about research being carried on to develop a resistant strain of bees, i.e., the resistance if attained, will be in the nature of an ability to clean house, rather than building up immunity against the virus that attacks the larva and pupa. It is not only probable but possible that a truly resistant strain may be evolved wherein the immunity would be due to antibody formation within the bee and which would be inheritable by the following generations of larvae and pupae. The approach to this attainment would have to be through the introduction of antigenic materials into the food fed to the larvae of the queens and drones.

Colony Protection

Winter brings to the beekeepers of the colder regions the problem of colony protection. Some solve it by packing on the summer stands with materials ranging from baled straw to forest leaves, others by wintering in bee cellars, and there are a greater number who do not protect their bees at all. The writer belongs to the last. I used to pack with leaves and tar paper but decided 4 years ago that it was unprofitable for me to continue to do so in my climate.

I noticed that some colonies wintered without packing emerged in the spring in better condition than those packed, and surpassed in honey production any that were packed. After deciding why, I quit packing. The coldest winter during my experience was 1935-'36, when the temperature of 24 degrees below zero was recorded locally. If it doesn't get any colder than that I shall never need packing again.

The secret of successful wintering is within the hive and not in the packing around it—a young queen, plenty of young bees, an abundance of good stores, and the hive tilted forward to insure drainage of condensed moisture, with a sunny location and windbreak.

Robbing

J. F. Dunn whose "Comments on Current Items" are always interesting, speaks of stopping robbing with a spray. I might add that a couple of squirts of kerosene at the entrance of the colony being robbed will usually end the robbing if the colony is defending itself. When the robbing is being done by one colony, exchanging the positions of the robbers with the hive being robbed has never failed to end it in my own apiaries.

In the Australasian Beekeeper an article on Heddon's principle is worthy of mention. I quote in part, "Heddon's plan was founded upon his discovery that 'Bees will not swarm, or prepare for swarming, so

long as there is no capped honey close above the brood nest, ... ' ". Every beekeeper recognizes that with few exceptions this is true, and that to prevent the condition that encourages swarming the worker cells must extend to the top-bar. The beginner should make note of this and use foundation that will not stretch when drawing brood combs.

O. B. Griffin wonders about the other interests that beekeepers have. I have often wondered also, so as an example:

The writer, with a few over 100 colonies, finds time to be interested in the culture of fine dahlias, represents a Life Insurance Company, and does clerical work for Township and School District as clerk. I might add that the apiaries are run only for comb honey in sections and I had a good crop the past season.

Junction City, Ohio..

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COMMENTS ON CURRENT ITEMS
J. F. Dunn

Top Entrance

This is a popular topic nowadays. No doubt it may be a good thing in certain localities but we doubt if it would be any improvement in our Niagara District.

The Florida of Canada

Mr. Morley Pettit calls Niagara "the Florida of Canada". The home of the grape, the peach, the apricot and a lot of other fruits that cannot succeed (commercially) in other parts. We seldom get a zero temperature, just on rare occasions and lasting but a few days.

Honey Crop

Our honey crop of 1937 is fully 75 per cent of normal and averages 50 per cent in our province. There was absolutely no fall honey and our colonies went into winter quarters with a lot of old bees reared during the clover bloom and we are expecting a very heavy loss in the spring. Of course, we could have practiced stimulative feeding but would it have paid us? The most of the brood chambers are pretty well stocked with honey but for the first time in a half century there was almost nothing above the excluders.

A "Cleaner-Up"

The photo No. 6 on page 734 December Gleanings, is, if I have the right conception of it, an arrangement for the bees to clean out the honey left in the combs after extracting. I think the best "cleaner-up," as I called it, is the one first made by G. A. Deadman of Brussels, Ont. This was simply a foundation frame of 2x4 scantling large enough to hold six supers in front, and back of them six more. A close bottom was nailed on the 2x4s (set edgeways). A strip ⅞" thick was nailed on the outer edges of the platform to form a bee space under the supers. The center front full-depth super contained a strong colony of bees with entrance ⅜x4", to clean the combs. We often placed as many as 45 supers on those platforms and the bees cleaned them bone dry. The bees carried the honey from the supers to their hives and placed it in the supers above the colony.

Honey vs. Sugar for Stores

I can readily understand why bees wintered entirely on sugar stores may in some localities be in a safer condition for winter than colonies wintering on late fall stores of honey with probably some honeydew which is not honey at all. On some bright summer day lie down on your back under a tree and over the top of the tree you will see a fine mist falling down on the leaves. If you cannot, with the naked eye, see the insects, use an opera glass. The thin mist is honeydew exuded by those insects and the dark sticky substance can be seen on the leaves. It is, no doubt, a cause of dysentery. In this locality I have not seen any of it for years. It can easily be detected by taste. It is not fit for food, but a mixture of this stuff, one-third dark honey or honeydew, one-third water, and one-third alcohol makes a good antifreeze for auto radiators..

Food Chamber Solves Food Problem

Since we adopted the food chamber system, and we believe we were one of the first Canadians to use it, we have not fed sugar, and have had no trouble from dysentery. Experience has convinced me that bees build up faster in early spring on natural stores than when sugar-fed. Honey contains quite a lot of pollen grains which help at a time when the weather is not safe for the bees to search for pollen. We have no buckwheat within flight of our bees, but in former years we were apt to have at least 40 acres of it within half a mile. The bees winter on buckwheat just as safely as they do on the finest clover. Buckwheat contains more pollen grains than white honey.

Ridgway, Ontario.

Editorials

History May Repeat Itself

This winter has started off with a bang. Bees in most of the North had a good flight the last week in November. Winter stores are none too plentiful in certain regions and some of the late-gathered honey is of doubtful quality for winter bee food.

In the past, heavy winter losses have usually preceded good honey seasons. History may repeat itself.

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Beekeeping Marches On

Most of us are too close to beekeeping to appraise it properly. To get a birdseye view of our industry we must stand off a bit to get the proper perspective.

Beekeeping has made marvelous progress, especially during the past 85 years, since the invention of the movable-frame hive in 1852, also comb foundation a few years later in 1857.These two inventions helped to usher in a new beekeeping era.

But even with these improvements, our industry lagged for a time, mainly because of weak colonies and heavy winter losses which beekeepers were unable to overcome.

Finally in 1879 the late A. I. Root introduced the shipping of bees and queens in packages containing candy and water. This marked the beginning of the present package bee and queen business, which, during the past few decades has rapidly reached its present proportions of 206,756 queens and 262,551 pounds of bees which were produced and sold in the U. S. A. in 1936. It is now possible, not only to retrieve winter losses but to start new colonies and realize returns from them the same season.

Our industry is still in its infancy. It requires no wide stretch of imagination to foresee what may occur in honey production within the next few decades, especially if the weather man gives beekeepers a break. With improved bees and beekeeping equipment, short cuts in production, better roads and transportation facilities for operating out-apiaries and the improvement in bee pasture which is bound to come as a result of the government soil conservation program advocating the planting of legumes to rejuvenate depleted soil, honey production should be increased.

Our big problem at present is marketing. Production may run ahead of demand. Honey must be popularized in order to increase demand. Possibly this will come, if and when honey is produced in sufficient quantity to actually make a dent on the market. We would then be forced to do something about marketing.

Yes, beekeeping is here to stay. Our industry cannot stand still; it must march on.

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Food Chambers Crammed Full of Honey

Obviously a food chamber is intended to furnish ample food for a colony. It may be either a shallow or deep super, well filled with well ripened honey—this in addition to what honey there may be in the bottom story or brood chamber.

It is quite necessary to have the combs in a food chamber well filled with honey, especially in the North where the long cold spells do not permit bees to break their clusters frequently during the winter.

During a long cold spell the cluster of bees moves upward slowly, as the honey in the combs occupied by the cluster is consumed. The winter cluster does not normally move laterally or sidewise during very cold weather. If the honey in the combs occupied by a cluster is all consumed, as is sometimes the case when the combs at the beginning of winter are not well filled, the cluster may reach the top bars of the combs, run out of honey, and starve. If, however, a mild spell of weather comes before the bees consume all of the honey in the combs they occupy in the middle of the food chamber, the cluster will move laterally on to fresh honey, (provided there are more combs of honey at the side of the food chamber to move on to).

It is not uncommon to find a cluster of bees dead in the spring a few inches from combs of honey. Such a loss is due to protracted cold weather and inadequate stores. Such colony losses are not likely to occur if proper protection is provided and if the food chambers are crammed full of good honey at the time colonies go into winter quarters.

XUM

Two-Story Wintering and Pollen Supply The food chamber or two-story brood chamber hive that is becoming so popular over the country, has a number of distinct advantages over the single-story hive. The former is more likely to contain an ample supply of honey for winter and early spring than the latter. This is an essential requirement for colony development.

Also the two-story brood chamber is more likely to contain an adequate supply of pollen, which is so essential for early spring brood-rearing. Some recent work done at the Federal Bee Laboratory, Laramie, Wyoming, by C. L. Farrar, emphasizes the importance of an abundance of pollen for each colony going into winter. It stands to reason that a two-story should contain more pollen than a single-story hive. Furthermore, it seems reasonable to assume that the larger brood chamber should produce a larger colony than would the single brood chamber for the main honey flow, and that is what counts in honey production.

Our experiences with the double brood chamber hive during the past decade have convinced us that it has some real advantages over the single-story brood chamber hive.

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Are Seasons and Honey Flora Changing? During the past three seasons in the vicinity of Medina the fall honey flow has extended into October. This late flow has prolonged brood-rearing and this in turn has stocked hives with young bees for winter. The source of this late flow is wild aster which seems to have been unusually abundant of late.

Some years ago our fall honey flow in this locality started about August 21 and continued until the middle of September. During the past few years it has begun about September 1 and continued until October 10.

Nectar secretion depends on favorable weather and soil conditions. It does seem that the active bee season has extended further into the fall during the past few years because of favorable conditions.

In some regions the honey flora has changed considerably during the last decade. Where white and alsike clover once constituted the main source of nectar, sweet clover has come in. In recent years in some of these regions sweet clover has given way to alfalfa, which secretes nectar, under favorable conditions.

Beekeepers must be ready to adjust their management to changes in crop rotation, also the peculiarity of seasons.

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Medicinal Claims —Are They Justified? Great, and probably extravagant claims are made for the medicinal or curative properties of some honeys, and because of these claimed properties they are bringing high prices.

For example, Cuban Aguinaldo is recommended for rheumatism, gas pains in the stomach and bowels, stomach ulcers, asthma, coughs and colds. Moreover, it is said to be a body-builder, and there are testimonials and full addresses to prove the claims. Although this honey brings high prices (one dollar for nine ounces), large quantities of it are sold.

In the same way extraordinary claims are made for foreign honeys sold in New York City, bringing all the way from one to two dollars a pound. Evidently these honeys are not bought for their flavors or sweetness but for their claimed curative properties. At the same time American honeys with equal or better flavors, are retailing for as low as fifteen cents for a pound bottle.

We are not trying to disprove any of the extravagant claims for these special honeys. They may have qualities that ordinary good American table honeys do not have. We do know that the promoters of these special honeys have done a lot of advertising of their products, and such advertising cannot help but boost the merits of any and all honeys. Certainly no American producer can claim that they are cutting prices.

That these special honeys have curative properties may be true, but we have a right to doubt that they are superior to ordinary American honeys, because we know that any good honey does not cause flatulence or gas like ordinary sugar. Our former editor, Mr. George Demuth, like thousands of others, could not eat ordinary sugar, but he could eat any good honey.

White sugar or ordinary candy is

acid-forming in the stomach, while honey, on the contrary, is alkali-forming. As many, and perhaps most old people have acid indigestion, sugar aggravates while honey corrects the acid by its alkaline reaction. Therefore, honey is better for old people and children than sugar. On the other hand, young and middle-aged people with normal digestions can eat sugar and candy without distress. Would not these people be better off to use nature's sweet that goes into the blood stream immediately?

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Suggestions for Shipping Package Bees Dr. W. L. Whitcomb and his associate, E. Oertel, are doing excellent work in the Bee Culture Laboratory at Baton Rouge, Louisiana. Dr. Whitcomb made the following suggestions in the American Bee Journal for December. When more than one package is sent in a shipment, the mistake is too often made of crating the packages too close together. In hot weather the inner packages do not get the ventilation needed. The distance between the packages should not be closer than six inches and sometimes ten inches, depending upon the time of the season and the place to which the bees are to be sent.

There is often quite a shrinkage in the weight of the packages upon arrival. The Government men find that a two-pound package will shrink from one to seven ounces, much depending upon the nature of the honey flow at the shipping end. Bees can carry practically their own weight in nectar. If the bees are full of nectar they will weigh much more than they will after arrival at destination. The careful and honest shipper will always see that the packages are overweight when they start.

There is a great variation in queens. Even "scrub queens", so-called, will sometimes excell in performance, measured by pounds of honey, queens which are shapely and of good size. For that reason it is difficult to tell a poor queen from a good one, when reared under proper conditions.

The production of bees and queens can be greatly improved and increased by proper procedure. Some of the requisites are, an ample pollen supply, stimulative feeding or plenty of honey. Good queens are very essential. To produce good queens the proper technique in queen-rearing should be thoroughly understood and practiced.

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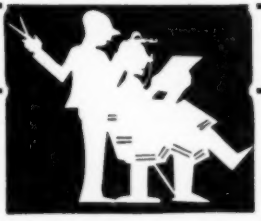
Unfair Practices in Honey Selling One of the greatest menaces to the legitimate and honest business of selling honey is the unfair practice on the part of some who are destroying the market by price cutting and unfair labeling. There never was a time in the history of beekeeping when under-selling of honey was any worse than it is today. The senior editor has been pretty well over the country and it is indeed distressing to see some fine packs of honey sold at prices that can mean only a loss to the packer. The usual excuse given is, "If the other fellow would stop it, I would." The big packer is apt to say, "Well, I can stand this price-cutting longer than the little fellow, and I'll soon run him out." At best this is a dangerous procedure. It may mean that some one or all of those engaged in price-cutting will put themselves out of business. In the meantime the little fellow can't meet the competition.

The difficulty in the past has been that if the packers get together and agree on a fair price, they will be running up against the Sherman Anti-Trust Law. Under the old N. R. A. there was a chance to work on a fair price schedule. Recent legislation may make it possible to sell at a living profit on any and all agricultural products. It is hoped that something of this sort can be brought about in the honey business. Certainly honey is an agricultural product.

Another practice that is reprehensible is unfair labeling. This is very nicely brought out in the last issue of the Beekeepers' Item, page 555. While the Bureau of Chemistry can stop the use of labels carrying misleading statements, the present laws are not strong enough in all cases to put a check on the fraud. Efforts are now being made to broaden the scope of our pure food laws, not only of the Nation, but of the several states.

There is one practice which is very common, and that is placing on the label the words, "White Clover Honey" when there is not a particle of such honey in it. Usually, when the label "White Clover" is used, the honey is sweet clover or alfalfa, or a mixture and in that the public is not defrauded; but the package is misbranded just the same.

XUM

Just  News

Dr. Edward F. Bigelow, President of the Agassiz Association at Arcadia, Conn., and editor of the "Guide to Nature Magazine" suffered an accident that has confined him to the hospital for several months. He is now rapidly recovering and hopes soon to be back at his old duties. Along with his other scientific studies he has been an ardent student of bee culture. He lectured and gave live bee demonstrations at Arcadia, at Medina, and elsewhere, years ago. He has done much to awaken an interest in bees. Some of his photographs of honey comb are still in our ABC and XYZ of Bee Culture.

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The annual meeting of the Pennsylvania State Beekeepers' Association will be held January 19 and 20 at Harrisburg. Out-of-state speakers are W. E. Dunham of Ohio State University, and Dr. E. F. Phillips of Cornell University.

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The annual Illinois Farm and Home Week will sponser a beekeeping program January 11-13 at Urbana, Ill., in the Zoological Building. Some of the speakers are V. G. Milum, G. H. Cale of American Bee Journal, and C. L. Duax, State Apiarist.

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According to George Rea, Extension Apiarist, if all the colonies of bees in the state of New York were located in apple orchards at the rate of one colony per acre, half the apple trees in the state would be without bees. In other words, there are twice as many acres of apples in New York as there are colonies of bees. Mr. Rea said that orchards as permanent locations for bee-yards are not proving practical; bees are often in the way the rest of the season and there is also danger of extensive poisoning even though the blossoms themselves are not sprayed. Spray poisons applied after the petals have fallen may become a serious menace to the bees, especially after a cool night when the dew is on the leaves. The bees are eager for water and often severe cases of poisoning result.

A Beekeepers' Conference will be held at Purdue University, Lafayette, Indiana, Agricultural Bldg., Room 103, January 11-13. R. H. Kelty of Michigan, also B. E. Montgomery, B. J. Wilkins, L. R. Stewart, G. E. Lehker, Ross B. Scott and J. E. Starkey, Chief Apiary Inspector, will appear on the program.

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James E. Starkey, State Apiarist of Indiana, is conducting a series of winter bee meetings in various counties. Here is the tentative schedule for January 1938:

Jan. Date	County	City	Time
5	Hancock	Greenfield	1:30 p. m.
6	Henry	Newcastle	1:30 p. m.
7	Delaware	Muncie	1:30 p. m.
8	Madison	Anderson	1:30 p. m.
Jan. 11, 12 and 13—Beekeepers' Conference at Purdue University, Lafayette, Ind.			
17	Wayne	Richmond	1:30 p. m
18	Randolph	Winchester	1:30 p. m.
19	Jay	Portland	1:30 p. m.
20	Adams	Berne	1:30 p. m.
21	Wells	Bluffton	1:30 p. m.
22	Allen	Fort Wayne	1:30 p. m.
24	Hamilton	Noblesville	1:30 p. m.
25	Tipton	Tipton	1:30 p. m.
26	Howard	Kokomo	1:30 p. m.
27	Grant	Marion	1:30 p. m.
28	Blackford	Hartford City	1:30 p. m.
29	Huntington	Huntington	1:30 p. m.

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An intensive three-day Beekeepers' Short Course is scheduled during Farmers' Week for January 24, 25 and 26, Botany and Zoology Building, Ohio State University, Columbus, Ohio. Approximately 20 lectures and demonstrations will be presented during the Short Course on the practical phases of Bee Culture. At this time the abundance of honey plants is extremely favorable, yet experts are anticipating many specific apiary problems for the coming season due to the rather unfavorable condition of many colonies of bees in the state. The subject material is built around these anticipated problems of the beekeepers and for this reason beekeepers are especially urged to attend this educational meeting so that they may better cope with their problems during the coming season. Out-of-state speakers selected to cover fundamental phases of beekeeping are: Dr. E. F. Phillips, Professor of Apiculture,

(Continued on page 60)

From North, East, West and South

NORTHERN CALIFORNIA, Dec. 3.

Weather: The weather for all of Northern California for the past month has pleased all beekeepers who had their bees ready for winter quarters. Those who had been slow about moving in to the fruit districts and getting their bees properly located for winter are not so well pleased. The rain came early and was general over the entire area and giving ample moisture for plant growth. This condition is most encouraging to beekeepers who know that moisture early in the season is very necessary to give honey plants a chance to get rooted.

Bees are going into winter quarters in as good condition as usual. Beekeepers are more careful in having a good queen with plenty of young bees at the beginning of the season.

In reporting we sometimes overlook the most northly part of the state, especially in the mountains where conditions are entirely different from what they are near the coast and in the valleys where the bees fly most every day during winter. In these counties when the question was asked, "How are the conditions in our district?" the answer in several instances was, "Brood-rearing is over" Many colonies have formed their winter clusters, all have heavy stores of honey. A few in the higher mountains are short of pollen.

Market: There is still some honey in the hands of producers. The market for honey is quiet. Dealers generally are purchasing very little honey, claiming that they have ample supplies. Some producers are holding for higher prices. There is a good demand for wax and the price is quite satisfactory to producers.

Miscellaneous: Our convention of the California State Beekeepers' Association held in Fresno in November, set a new record for good meetings. The attendance was large and every part of the state was well represented. It required only a glance over the gathering to be convinced that the beekeepers had gathered for a purpose. There were several subjects considered of very serious importance, freight rates, marketing, and warehousing. The first was given to the standing committee. Then the discussion of honey marketing was taken up. We can safely say that no former meeting of the Association has been filled with so much sound advice and the need of beekeepers cooperating with each other in the production, processing, grading and warehousing and sale of their products as was crowded into this session. Every beekeeper present was convinced that the only way to improve the marketing situation was through some determined effort on the part of the beekeeper himself. The prevailing opinion was that small cooperatives in the producing center, if linked together with the affiliated associations, could go far toward rendering the necessary aid in orderly marketing. Every beekeeper made a resolve to give the matter serious consideration with his fellow beekeepers and with the advice of State and Federal agencies.

The discussion on the subject of Federal bonded warehouses was led by William Atchley, who has for the past five or more years successfully managed a United States bonded warehouse, loaning money to beekeepers. When the discussion was finished, N. E. Miller, the biggest producer in the United States, summarized the talk by saying that if the beekeepers would follow the advice given, a long step would be made in solving the beekeepers marketing problems.—Cary W. Hartman, Oakland, Calif.

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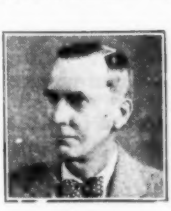
SOUTHERN CALIFORNIA, Dec. 3.



Weather: The present continued dry spell is the longest within the memory of most of the inhabitants of Southern California. No rain to date and irrigation is being carried on the same as during the summer months. Honey plants have not suffered to any great extent and there seems to be considerable

moisture deep in the ground yet. Still, unless we get rain before the New Year our honey prospects will fade very fast. People are beginning to quote the dry seasons of former years where the rainfall was very light.

Honey Crop: The 1937 honey crop is a thing of the past so far as production is concerned. What the orange and sage honey producer is interested in at present is a fair price for his crop. Four and one-half and six cents for light amber and white honey respectively are prices at which a man cannot continue to operate unless he gets better seasons than have averaged the past several years.

Prices: The demand is not at all active on honey but prices seem about the same as at our last writing. Demand for light amber seems better than for white but price is below what most beekeepers think they should receive. The difference of about one-half cent seems to be what is keeping honey from moving.

Miscellaneous: Most beekeepers who returned the extracting supers to the bees to be cleaned up, are busy taking them off and storing until wanted. We store ours outside on mice-proof platforms with a good cover over each stack of about eight supers. Stored out in the open with plenty of light between we seldom lose any combs from the wax moth. When these combs are put on the colony to be cared for after extracting we usually put a cloth or several thicknesses of paper between the colony proper and the surplus supers. This makes it very easy to remove the supers. Early in the morning all one has to do is to lift the supers as the bees are all clustered on or around the brood below. Of course, we leave a small opening in one corner of the cloth so that the bees can pass up and down.

The idea of three cents per case to the Institute sounds good, but what we are wondering about is, what per cent of the beekeepers are going to send the money after they have produced the honey. We have often thought that a plan might be worked out whereby the man who furnishes the cases would remit to the Institute so much per case. We would certainly patronize that firm and with the beekeepers understanding the proposition, in our opinion, his business would prosper far beyond the amount he would be called upon to remit to the Institute.

A weekend trip through the "back country", of Riverside and San Diego Counties and across the great Imperial Valley was enjoyed by the writer since our last letter. The whole country is taking on that "before winter" appearance throughout the unirrigated sections. The ground is dry and barren where usually at this season the grass is several inches high. In our forty years' experience we have never seen so much fall coloring on the leaves and foliage along the road and over the hillsides.

Here and there we could see small apiaries nestled among the rocks and brush. Wild buckwheat and other honey-producing plants are scattered here and there among the scattering rocks and chaparral that cover the rough canyons and hillsides. Fair crops of honey are gathered in favorable seasons and coming in late as it does beekeepers can take advantage of the earlier season on the lower valleys and move to these parts for the late honey.

Throughout the Imperial Valley there is about as little in the way of blossoms as we have ever seen. Flax, one of the earliest bloomers, is about three inches high. Grain is about the same. Alfalfa in most cases is being pastured and thousands of cattle that have been brought to the valley to be fattened for the early market can be seen. Some beekeepers have sold their honey but others are holding, hoping for a better price. While we hear of no spectacular yields the honey crop is quite consistent and there have been no failures. Much of the honey is a choice light amber in color and of good flavor. Apiaries are covered with "Ramatha's" or canopies to form shade. These are high enough to work under and are necessary to protect the apiaries from the summer heat.—L. L. Andrews, Corona, Calif.

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MONTANA, December 2.

Weather: The fall weather has been the finest in the State's history. At present it is freezing a little at nights. We are behind in moisture for the next summer and fall. It has been nice weather for packing bees, and scarcely a day goes by that bees have not been flying. Weather was never quite good enough for any honey flow. I am afraid they have used honey until their winter stores will be short. Our entire summer was very dry and if flowering plants were not injured or killed we should have an

abundance of honey plants next year.

It has not snowed in the valleys but high in the mountains there is more snow than in other years, so our irrigation may be plentiful for another year. It has been too warm to pack bees, but if hard storms do not hit us in the next two weeks all the winter packing will be done.

Honey Crop: There is not as good a crop of honey this year as last. However it was produced in a shorter time and is of a very nice quality. The yield would have been much better if colonies had been stronger. Prices have been the same as last year. Most of the honey has been sold, with inquiries for more. There was very little comb honey produced.

Miscellaneous: I was over on the coast and saw so much snow that I came home to get winter clothing. I arrived home more than a month ago and still have to look for the first snow. A frost here early in September hurt the fall bloom giving us a few light hives.

Bee men here are discussing foulbrood control. There has been less di sease this year than usual. A large number of the bee men have been working very hard to keep the disease from spreading.

Cars, trucks, trailer houses and freight cars are bringing all the belongings of many drouth stricken families to the Bitter Root region. Because of this many commercial bee keepers will find their new neighbors with a few bee hives that have not been inspected.

More packing and cellar wintering will be done here if folks don't decide that this fine weather will last all winter. However, the thermometer was hovering around zero last year at this time and below zero the year before.—Parson Pile, Corvallis, Montana.

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IOWA, December 9.

The annual meeting of the Iowa Beekeepers' Association which was held at Ames on November 18 and 19 was one of the most successful held in recent years. The attendance was unusually large and was consistent at the various sessions. The program was exceptionally well received by the producers who were present. There were more new faces present at this meeting than at any for several years. This may possibly indicate an interest on the part of a new group of people in honey production. Plans are already underway for a short course which will be held separately this year, and it will take place probably the latter part of May at Ames. This short course will be held in conjunction with the Horticultural Society Field Day meeting at Ames.

The 1938 spring series of radio discussions for honey producers of Iowa will be inaugurated again over WOI on Monday, March 14. The regular period of 12:00 to 12:15 will be available again for this presentation. The honey production series of discussions is one of the oldest regular programs on WOI, and this Monday noon period has become an institution with the radio station as well as the honey producers of Iowa.

The conditions which existed in Iowa in 1937 resulted in a considerable movement of bees. Producers were desperate in their effort to catch up with a good honey flow. It seems as though the honey producing industry of the state of Iowa was on wheels. This situation resulted in some interesting developments for the honey producer. There are examples of where producers moved clean equipment into territory which was not thoroughly inspected and at the end of the season it was found that several cases of disease had been contracted during the honey flow. The question then was whether to treat this equipment where it was or to move it back to the home location for treatment. Either procedure demanded cooperation with the inspection service, and this co-operation was not always taken advantage of by the producer. There are other cases where producers moved bees into areas where disease clean-up work was underway and later some of the colonies in such apiaries developed disease. Here again is the situation which calls for close cooperation between the honey producer and the inspection service. There was still a third type of producers from out of the state moving into this territory and in most instances the cooperation from the inspection service was secured before the transfer of material took place. It is not the function nor the desire of the inspection service to prohibit the legitimate movement of bees in an effort to get a honey flow. The inspec-

tion service is conducted on a basis of regulation. In the first instance it is possible for producers to identify territory where disease might exist through the cooperation of the inspection service. Secondly, it is possible to get a permit to move and thereby comply with the law without any handicap. In the next instance it is better to seek the cooperation of the inspection service when disease is found in an apiary rather than to attempt to beat the game and later run into the provisions of the law which make it mandatory for the inspection service to institute court action.

There seems to be a general feeling of optimism of many of the larger producers in the state. This is expressed in an intention to increase the number of units operated in 1938. The bulk of this increase will be made through the purchase of package bees from southern shippers. There is probably more general confusion at this time than is customary although it is refreshing to have a ray of optimism expressed occasionally.

The winter conditions are not any too favorable at the present time for honey plants. New seedings were not as successful over as large a territory as could be desired and the sub-normal temperatures with the sub-normal moisture will make it difficult for old seedings to survive. It is becoming increasingly necessary for the honey producers to make a thorough canvas of a territory for honey plants before anticipating beekeeping operations.—F. B. Paddock, Ames, Iowa.

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SOUTH DAKOTA, December 10.

Weather: We're all looking for the guy that promised us a mild winter. We would sure make it hot for him!

Predictions have fallen through again with a northwest gale that has blown steadily for a week—the thermometer cringing between zero and 10 below.

The fall has been rainless with only the moisture of two or three light snows to help clovers and grasses through until spring.

November was ideal for packing bees, there being a few stormy spells to remind us the work must be done promptly, and then cool, quiet days in which to do it.

Honey Market: Due to the notable shortness of the crop there has been a brisk trade among beekeepers for the visible supply. Several beekeepers who have good retail outlets built up have been purchasing from others who have more than enough for local trade at prices above what large packers are offering. Honey over the counter is selling about as usual at prices strong with last year.

Miscellaneous: I note considerable confusion in December Gleanings on the subject of a bee's reaction to the change from bottom to top entrances. Among beekeepers here it is considered unnecessary and inadvisable to pack colonies until settled cool weather, and generally bees have been in cluster several days before packing is started. By using an easy and efficient method of packing the cluster is never broken in the process. By the time the weather warms up for a flight, if it ever does, the bees will have long since forgotten they ever had a bottom gangway. I can truthfully say I've never lost a bee in changing from bottom to top. Even the two or three guards that may fly out of the top entrance after the pack is finished, never miss locating the point of exit. Bees aren't so dumb!

However, the situation is a bit different when unpacking in the spring. Here the beekeeper must use some restraint and care with due regard for weather and perhaps even the time of day he unpacks.

I am fully in accord with Charles Mraz of Vermont when he says "Never again", regarding the tar-paper pack. There are better, easier, and cheaper ways so why not use them. The tar-paper pack must eventually go the way of the leather breeches.

Trees and bees are two things very nearly inseparable and it is discomforting to notice the gradual deterioration of woodlots in this part of the country. And it really isn't the fault of the country or the weather for a short trip in counties to the west, which are supposed to be dryer than here, show a remarkable growth of the shelter-belt trees planted by the government a year or two ago. Trees will really grow in South Dakota if given a chance.

If cabin trailers are good for anybody they should be most excellent for the nomadically inclined beekeeper. It would mean free rent for him under southern skies, and if he has a house in the North he wouldn't

even have to haul it back in the spring—just leave it there until next winter. I'll have to think about that. —J. F. Norgren, Junius, S. Dak.

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GEORGIA, December 6.

Weather: Conditions throughout the season were abnormal over almost the entire state, yet it was our best year for honey production in several years. Honey sources seemed to have been badly confused, whether to put out or remain dormant.

Much tupelo-gum came out in full foliage by the middle of March, so did other honey plants, including gallberry, our greatest honey plant. Consequently we had the longest drawn-out honey flows we have ever had. We gather our greatest honey crop from the latest blooming gallberry, which was fifteen days later than ever known, during which time we had ideal weather.

In making a long and careful study of seasons I have learned that abnormal weather conditions and seasons begin in the extreme south of Florida and follow up north. If there were some way to sound the alarm in advance it might be of great help to many beekeepers.

Honey Crop: During September and October we usually have a long dry spell. Weather was reversed this season, and we had heavy rains all along, resulting in a light crop of Mexican clover. It was just right to reduce brood-rearing and the bees filled the brood nest full of honey, but this means only better wintering.

Honey Market: Our best, both local and distant, but prices not stimulated, as naturally expected, and a few beekeepers are holding over a small portion of their crop expecting better prices later.

Miscellaneous: Beekeepers all over the state seem to be very optimistic over the outlook and have put in better stock and added greatly to their equipment, as well as made lots of increase in the number of colonies. However, much of this is due to our appropriation for state-wide bee inspection work which has been carried on in a great way and disease is well under control.—J. J. Wilder, Waycross, Ga.

COLORADO, December 7.

Weather: Since my last report, the weather has been exceedingly dry, except for a very limited amount of precipitation which has fallen in some areas. The snowfall in the mountain ranges has been much below normal for this time of the year. There is ample time, however, during the coming months, for an abundance of snow to become lodged in the hills for the use of next season's crops. As I am writing these lines, reports are coming in over the radio that, the Northern part of the state is now receiving a much needed blanket of snow, as a storm, rolling in from the North, is scheduled to cover the entire state. The open fall weather that we have enjoyed has also been quite favorable to the bees. Their activity has been confined to a comparatively small amount of flying, which is very desirable, especially where colonies were put away for the winter below par, in regard to both bees and stores.

Honey Crop: The short crop is gradually diminishing. Some producers are sold out and buying from others to supply their trade. The prices are generally holding firm with an increasing demand as the colder season and the holidays are nearing. The leading package, for city retail, being the five-pound pails, of which at least twenty-five are sold for each one of the ten-pound pails disposed of. This is quite a contrast as compared to the sales of these less than ten years ago when an equal number of each were sold. If the present tendency is extended, the ten-pound pails will be out of the picture in a few years. The sixty-pound cans, too, are gradually losing the place they formerly held as retail packages for table honey.

Miscellaneous: Much interest has lately been shown regarding upper entrances for wintering. Many beekeepers of this state regard it as a necessity to good wintering, whether the bees are packed or not. Holes are bored in the upper stories (food chambers), varying in sizes from one-half inch to one inch in diameter. If holes much larger than one-half inch are used, mice, sooner or later, are liable to enter supers and destroy combs. To screen these upper entrances, as mentioned by some, would defeat its very purpose as the bees would soon close the wire meshes up with propolis.—G. A. Pauli, Pueblo, Colo.

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TEXAS, December 1.

Weather: The weather for November was conducive to the bees. Flight conditions were excellent with the exception of about five days at which time the bees were kept indoors due to the fog and heavy clouds. The bees were clustered only one complete day during the entire month. Flight observations showed that bees flew on all but three days. The bees are still bringing in small amounts of pollen and nectar from late fall composites. Brood-rearing has ended. This is the earliest date for the ending of brood-rearing for many years. All bees seen or reported upon during November have ample stores for the winter.

Markets: During November quite a number of men hunting honey visited this part of the state. They report that the spring crop of guajillo-catsclaw has passed from the hands of the producers and that honey of any kind produced in Texas is hard to find. At the same time these same men report that the demand for honey is strong. However, in the stores in the larger cities the price is stationary and the amount of honey sold is above normal for this month.

Miscellaneous: An ever increasing number of inquiries relative to beekeepers coming to Texas in the fall of the year, buying colonies here, working them during the spring and winter and shipping them North as packages in the spring, necessitates the statement that this procedure is no longer possible. This practice for the past four or five years and the effect of drouth on bees, together with the loss of many colonies by poisoning, has eliminated all of the small apiaries that might have been purchased. In the future any beekeeper desiring to come to Texas during the winter must bring his full colonies of bees with him. For the benefit of beekeepers who so desire to bring full colonies to Texas a certificate and permit must be in the possession of the owner. Anyone desiring to move bees into Texas or across county lines in Texas should secure information as to the requirements for such certificates from Dr. F. L. Thomas, Division of Entomology, College Station, Texas.—H. B. Parks, San Antonio, Texas.

NORTH CAROLINA, December 8.

Weather: Conditions were not very favorable for the development of the fall honey-producing plants, resulting in low yields through the greater portion of the state. Rain during the fall was about normal. This placed the soil in good condition for clover and other honey producing plants for another season. Winter is with us now. For several days the temperature ranged from freezes in the warmer sections to eight degrees below zero on some of the higher mountain tops.

Honey Crop: For the whole state the spring and summer honey harvest was below the average yield. Reports from all sections indicate about 80% of a normal crop. Beekeepers in the coastal plain and tidewater counties report the best season for several years. All through the central and upper Piedmont counties the yield was from no surplus to about two-thirds of a crop. For the western counties in the mountain section the crop was about 75% normal. The flow was spotted through these counties ranging from very low yields in some localities to above the average in others. Some reported yields up to 100 pounds per colony from tulip-poplar, basswood and sourwood. The sourwood, however, was a failure through most of the region.

The fall flow was spotted but very light in most sections. In some of the eastern counties surplus honey was harvested from fall flowers. Through the Piedmont and mountain sections the flow from goldenrod and asters was only sufficient to stimulate fall brood-rearing and low yields in some localities.

Honey Markets: Beekeepers have sold about half of the 1937 crop. Local demands for honey have been increasing for the last few years. The local markets are taking a larger portion of the present crop than has been the usual custom.—C. L. Sams, Raleigh, N. C.

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OHIO, December 9.

Weather: We had some superfine autumn weather which lasted for a reasonable length of time but as old Jack Frost ushered winter into our schedule of weather he just simply stuck his icy fingers down our spinal column and is keeping them there to the tune of 4 degrees above zero this morning. Rainfall in the autumn was sufficient to afford a good start on plant life for early spring. This was

followed by a blanket of snow: another feature of weather that will be helpful.

Honey Crop: The north and northwestern sections of the state had about the nearest crop failure in many years. The fall flow was light and feeding was necessary for winter stores. In most localities in the eastern section as well as the northeastern portion the bees produced a heavy fall surplus for wintering over. The south was only fair through the summer and fall flow. In the central west and central south sections the fall flow was somewhat short. However, some of the beekeepers in the south central portion have reported a surplus for the year up to 125 pounds per colony. It appears that the yield tapered off as one travels northward through the state.

Miscellaneous: The season of packing bees has just passed and this has been given a great deal more attention since the hard winter and heavy losses of 1935-'36. Beekeepers, like all other professions, have their procrastinators and when real cold weather arrived they started in to packing their bees but most of them were packed in due time and during good weather.

Dr. W. E. Dunham, Extension Specialist in Beekeeping, Ohio State University, Columbus, Ohio, in his last issue of "Beekeepers Notes," mailed to most of the beekeepers of this state, has given us three very valuable messages, i. e., "Survey on Winter Losses"; "Protection for Bees" and "Procedure for Packing Colonies". If you haven't read 'em, read 'em. If you have read 'em, read 'em again.

In a little scientific magazine I discovered something that might be of interest to some beekeeepers. In a very condensed form here it is: The speed kings of the world are insects. The champion of these insects is the deer bot-fly. All bot-flies resemble bees in appearance and size with a similar hum. The useful speed of sound is exceeded by the speed of the flight of the bot-fly, or horse bee as it is sometimes called, according to a scientist who timed the flight with a camera shutter. Racing results: Sound, 1089 feet per second, or a mile in five seconds minus; Bot-fly, or horse-bee, 1,200 feet per second, or a mile in four seconds plus. Winner: bot-fly. If it were to travel for one hour it could travel a distance of 800 miles. No mention is made of the honeybee but just for fun let us discount its speed against the speed of its likeness 25%. That would make the honeybee good for 600 miles per hour, the airplane trailing along at about 400 miles per hour, and the racing auto at about 300 miles per hour. For rapid transportation use the "Beeplane."—W. A. Coulter, Columbus, O.

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TENNESSEE, October 23.

Last season was a good one in Tennessee. We had abundant rain when needed and a good market, particularly for comb honey.

Insufficient honey is produced in this section to supply the demand and considerable is shipped in by large grocery stores. Presumably this comes from the fine producing sections of the northwest, but the people being accustomed to the tart flavor of Tennessee honey very often judge this fine western product as being adulterated due, perhaps, to its mild flavor.

It is strange to some observers why action is not taken by beekeeping authorities to divest the minds of the people of the honey adulteration idea. Some say honey labels should be enlarged to carry a concise note stating that "honey not of a flavor to which the user is accustomed may be thought to be adulterated."

We have observed that people are zealous for honey flavors to which they have been long accustomed. Tennessee's dark poplar honey shipped into the Northwest would meet suggestions of adulteration, and the same for honey shipped into Tennessee from the Northwest. This applies also to fine honeys produced in different sections of Tennessee.

Many advise of substantial honey sales to hay fever sufferers and for persons in a rather run-down physical condition, this, on advice of the attending physician. Fresh comb honey, even partly capped honey is sometimes suggested.

Some say too much nectar is being lost in Tennessee due to lack of well-kept colonies of bees and this lack may be ascribed in part to the multiplicity of present-day hive parts and the almost countless manipulations in which these hive parts may be used. The one piece hive of ancient history reached a state of use as to be recorded in Biblical history. Many small beekeepers now lose themselves in the manipulation made possible

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with the present day equipment. Some observers criticize the bee journal discussions relating to the claimed merits of the big hives vs. the standard hive saying this is confusing the small beekeeper to a point that he soon uses neither hive. Others say the small beekeeper should not have the two-queen plan called to his attention until the one-queen hive has been exhausted in use.

Many small beekeepers in this immediate section are giving up the pursuit on account of bitter-weed getting worse each year. This is a most serious trend and a solution should be immediately sought.—H. L. Rushing, Nashville, Tenn.

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ONTARIO, December 7.

Weather: As these notes are typed, the wind is howling and the snow is drifting —the first real snow of the season for our locality. In the last issue of Gleanings I stated that according to the law of averages we were due for some mild fall weather as October and September had been unusually cool all the time.

As we have had a very mild November with not a really cold day throughout the month, naturally I am in the "I told you so" class, a weather prognosticator, at the moment.

This mild November was ideal for the bees to get in good shape for a cold spell now as the days were too cool for much flying and not warm enough to bring on late brood-rearing. They flew freely here in York County on November 25, and in the Niagara peninsula and farther west in that latitude, the first of December was quite warm—up above 60 degrees in some localities I am told.

Heavy falls of snow covered much of the western part of the Province about November 20, but up to this time we here in York County have not had enough to cover the ground—about six inches of "the beautiful" covers the clover today and we shall be glad to see this protection for the next three months, but, of course, have no assurance that the snow will remain for even a week.

Miscellaneous: The annual convention of the O. B. K. A. was held in Toronto during the week of November 21, and notwithstanding the fact that Ontario had a very poor crop of honey this past peason the attendance and interest was good during the three days of the meeting.

As the writer has attended these meetings for many years now, I could not help but notice how the programs go around in cycles, varying according to crops, marketing, disease control, etc. For a number of years when crops were good and prices low with slow sales, management topics were conspicuous by their absence on the programs, and now after a three-year period of rather small crops, the program was full of such topics as size of brood chambers, management of apiaries, etc.

This is but natural, I suppose, for after all we are inclined to think and talk about those things that we are for the moment interested in—even so good an authority as the best Book of all says that "out of the abundance of the heart the mouth speaketh."

The honey exhibit at the Royal Winter Fair held at the same time as our convention was away above the average and by far the best yet, according to the opinion of many who saw the display. Four beautiful displays arranged in quadruple formation quite a distance from each other, with intervening spaces filled up with flower and fruit displays made a picture pleasing to the eye and very educative as well. The judges must have had quite a task in placing the awards and I know that every one of the four exhibits was worthy of a prize.

This is the last month of another year and as we get older how time does fly! As I write these notes my mind has gone back to the first time I sent in a contribution to Gleanings—at a time when I was so bashful that I did not sign my name to the article. Well I have got past that after more than thirty years, but I am afraid I have not made very much improvement literally or in a beekeeping way during all that time. In wishing the readers of this Journal a Very Happy New Year, may I, at the same time, express my deep appreciation for all the kind letters I have received from, I believe, every state in the Union, all over Canada and from many countries over the seas, including China in the east to Australia, South Africa, and almost every other foreign country? After all, the finest thing we can have in this world is "friends". Thanks for the many manifestations of this assurance.—J. L. Byer, Markham, Ontario.

Spinster Jane Says:

We who live in rural districts, can hear the bells ringing in the New Year, only over the radio, yet even that gives us a big thrill. One of our girls says sublime music gives her "a shiver up her spine, and brings out goose-flesh,"—well, the clash and clangor of those big bells gives me just such a feeling. "Ring out the old, ring in the new,

Ring, happy bells, across the snow;
The year is going! Let him go!"

Was that immortal bard not right? What a crime to brood over the mistakes and failures of the past. Here is a brand new year again!

We are all pupils in Life's Great School. It is compulsory. The Great Master places a new, clean, workbook on each of our desks, and admonishes, "See how well you can keep these, this year." Into waste-paper baskets or furnace go the old ones—blotted, soiled, pages torn. We are done with them, and we put them where they cannot taunt us any longer. The Master has looked them over, daily, correcting, chiding, admonishing, shaking His head sadly at the unsightly pages, but He keeps our standing, locked in His big record book.

Some day, quite unexpectedly perhaps, we will be called to His presence for an individual test, and for us, it will be either promotion to the Higher University, or being expelled, our big chance gone forever.

And what must we do to keep our pages clean and white?

First, "Be faithful over little things," and the reward? The joyous judgment, "Thou hast been faithful," and a crown of life.

Little things! How they cramp our style! yet they are THE things that really count.

If our business course is beekeeping, remember all the little details. Keep them well and properly. Spare no pains. Have the best we can get. Make your yard attractive. Keep free of disease. Produce the best honey possible. Be strictly honest. Sell your honey for what it really is. Give good measure, remembering, "With what measure you mete," and if you err in your weights, let it always be more, you give, never less.

People, especially the parents, over here, are all agog over the new course of study, just introduced in the public schools. No longer is the child to be a machine, like a sausage-grinder, to be crammed to the limit with a hodge-podge of everything on our lengthy curriculum. He is to be treated as really human, hereafter. Things are all about him now, in the school-room, facts, illustrations, everything, and if normal, he must take certain knowledge in as easily as breathing.

Examinations in the lower grades are done away with. The things that determine his promotion are: his health, his mental fitness, his aptitude, his attitude towards work, and a dozen other before-disregarded things. It is really a revolution in educating children, and we believe it a really big thing.

Whatever use in real life did any of us ever make of, say, least common multiple? and dates in history always were, and always will be anathema to any normal child.

I believe we are more nearly approaching the course laid out for us in Life's School, only our Master reads our thoughts and actions much more correctly and understandingly than any teacher, no matter how many letters he may be able to tack on to his name.

Let us watch out for the little things, and thereby keep free of the bigger evils. We may even be granted a D. S. O. As in beekeeping, keep watching and fighting those pesky little ants and wax-moths, and the bigger bears and skunks will not dare come near. Evil thoughts are our ants in Life's School apiary. Keep free of them, and criminal minds and criminal tendencies will be kept far away. We may even take honors.

Pardon me, folks, for my New Year spiel. Already I feel the thrill of those glad, clanging, bells. But let us all watch those white pages, so soon to be ours, and win our Master's approving smile for a well-kept year book, making this 1938 a big help towards promotion.

Happy New Year to staff, contributers, and readers.—Spinster Jane.

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Asked and Answered

Too Much Pollen

Question.—Last fall some of the combs in a number of my colonies were badly clogged with pollen, especially the combs in the lower brood chambers. I winter in double-brood chamber hives with the upper chambers practically filled with honey. Is it possible that so much pollen is bad for wintering bees?—James L. Davis, Pa.

Answer.—Some years ago it was thought that combs containing an abnormal amount of pollen were not suitable for wintering bees because the pollen would cause dysentery. It has been found such combs are not detrimental to good wintering and that pollen does not cause dysentery. Some late work done by C. L. Farrar, of the Laramie, Wyoming, field station, shows that pollen is very essential, especially early in the spring when bees need it for brood-rearing. It is estimated that one pound of pollen is required to produce one pound of bees. We have frequently observed in our apiaries that any surplus of pollen in the fall disappears during the spring months of heavy brood-rearing.

Bee Stings for Rheumatism

Question.—I would like information regarding the use of bee stingers by medical institutions for treatment of certain forms of rheumatism. Any information you can give on this subject will be appreciated.—E. B. Thornburg, Calif.

Answer.—For information regarding the use of bee stings in the cure of rheumatism, we would refer you to our ABC and XYZ of Bee Culture, a work of 825 pages, under the head of "Stings, the Remedial Value Of". Or better, perhaps, would be the book by Dr. Bodog F. Beck, entitled, "Bee Venom Therapy". You can obtain this work from Dr. Bodog F. Beck, 116 East 58th Street, New York City. If you are interested in the subject or have in mind using bee stings, you would do well to get both works. It is now a pretty well settled fact that bee stings will cure certain forms of arthritis and rheumatism. Dr. Beck treats seventy-five to one hundred people daily in his office. In his book he gives technical information for physicians so that they will be able to apply the treatment.

Cleaning the Honey Extractor

Question.—I was advised by an old bee man not to clean my Cowan rapid extractor after using it, but to leave it until the next year because it would rust during the winter if I cleaned it now. Should I clean it now or wait until next season just before using it?—E. R. Simon, Minnesota.

Answer.—If the extractor is carefully covered to keep out bees and dirt, the honey that adheres to the extractor does no particular harm. As a matter of fact, it does have a tendency to preserve the metal. So, if your extractor is covered properly it would be preferable to leave the honey that adheres to the inside until the beginning of next season when it should be washed out thoroughly before next season's honey is extracted.

Eyelets for Frames

Question.—Is there any advantage in using metal eyelets in the wiring of brood frames?—Wm. J. Heim, Ohio.

Answer.—In our opinion, there is no great advantage in using metal eyelets in the end bars of brood frames. Frames properly wired, not using metal eyelets, prove quite satisfactory. The eyelets are supposed to keep the wires tight. There is a tendency when wiring frames that have eyelets for the wires to break, if care is not used in tightening the wires.

Honey Recipes

Question.—Where can I get some reliable honey recipes?—J. A. Horn, W. Va.

Answer.—Get in touch with the American Honey Institute, Madison, Wisc. The Institute has recently revised their wonderfully fine booklet entitled "100 Honey Helpings". The price is only 10c and it is worth many times that price.

Hives Covered With Snow

Question.—My hives of bees are almost covered with snow. Should I remove the snow?—J. L. Baines, Mich.

Answer.—No. Snow protects bees from the cold. The hive entrances should be kept clear of ice during a sleet storm. However, snow is porous and does not interfere with the circulation of air through the hive entrances.

Getting Started in Commercial Beekeeping

Question.—I have always been interested in beekeeping and at present I am in a position to begin in a large way, with a few hundred hives. Should I start with, say, 200, or should I get a few hives and gradually work into the business on a larger scale?—R. A. Slater, Ills.

Answer.—We suggest that you work with some competent commercial beekeeper, if possible, for at least one season in order to get some practical experience. In the meantime, read reliable bee books and bee journals, attend all the bee meetings possible to contact beekeepers. Practice and theory go hand in hand. It would be well to get a few colonies of your own to work with, even though you spend a year with some experienced commercial beekeeper. As you gain in experience and beekeeping knowledge you can increase the size of your apiary from year to year. Most of our successful commercial beekeepers started with a few colonies and gradually worked into commercial beekeeping.

Rearing a Few Queens

Question.—If I wanted to requeen my apiary from a swarm that made over 250 pounds of surplus honey, how should I go about it?—L. R. Whipple, Minn.

Answer.—The following method has been advocated by Mel Pritchard, our head queen breeder: After settled warm weather has come and drones are plentiful, select a fairly strong colony and remove the queen. Feed this queenless colony a pint of sugar syrup (equal parts granulated sugar and water) each day, unless there is a good honey flow on. Three days later go to the colony with the good queen and remove a comb containing no brood, in order to leave an empty space in the center of the brood chamber. In this space insert an empty brood comb that is clean and bright. Six days after making the first colony queenless, destroy all of the queen cells, then give this queenless colony the comb previously inserted into the colony having the good queen. This comb should now contain eggs. In the part of the comb where eggs are found, cut out long horizontal strips of comb about one inch wide. Along the top of the spaces thus made, the bees will build nice straight queen cells. On the eighth day after this queenless colony has received the comb containing eggs, remove the queens from the colonies to be requeened. Two days later carefully cut out the queen cells from the prepared comb and place the cells in spiral queen cell protectors and distribute them to the queenless colonies, hanging a cell in the center of each brood chamber where it will be kept warm. Virgins should emerge from these cells in about two days. About eight or ten days later (the time depending somewhat on weather conditions) young laying queens should be found in the colonies.

Neighbors Object to Bees

Question.—I have two neighbors who complain about our bees bothering them. I think it is mostly imagination. What can I do to smooth things over? I live in a small town.—W. L. Norwalk, Ind.

Answer.—Suppose you try to be especially friendly to those neighbors. Give them each a pail of honey and see how that changes their dispositions. A little honey given at the right time helps to cover a multitude of sins on the part of bees. Of course, you should use discretion in handling your bees at the proper time to avoid getting them stirred up. Unfortunately some beekeepers who live in towns are careless about manipulating their hives and make matters bad for themselves and the industry. Bees should be handled only on bright, warm days when nectar is coming in freely.

Using Full Sheets of Foundation Instead of Drawn Combs

Question.—I wish to start some colonies from combless packages of bees this coming spring and I have no drawn combs. Could I use frames containing full sheets of comb foundation in the hives instead of drawn combs?—John H. Beals, Wisc.

Answer.—Yes, it is perfectly possible to substitute full sheets of foundation for drawn combs. In fact, hundreds of packages are successfully installed on full sheets each year. It is necessary to gorge the bees with sugar syrup before releasing them in the hives. To do this paint the screens of the shipping cages with sugar syrup, using a brush or cloth. The bees will take the syrup readily. Bees gorged with syrup are likely to become established in a hive more readily than bees that are empty. Be sure to keep a slow feed of sugar syrup on each colony continuously until nectar from natural sources is plentiful. It is an advantage also to install packages late in the evening so that the bees may settle down during the night.

XUM

A Confab

By the Editors

(Continued from last issue)

Since the December Confab reached our readers a number of new contributors to this department have been heard from.

Carbolic Acid Discussion Still On

It seemed that W. H. Hull and E. R. Root had things their own way last month in the carbolic acid discussion. Mr. Hull raised the question, "Does carbolic acid injure bees?"

Now comes A. F. Wagner, Chula Vista, Calif., who raises another question about the use of acid. His question and comments follow:

Does Carbolic Acid Cause Supersedure?

I have just finished reading your article on page 732, December issue of Gleanings, "Does carbolic acid injure bees?—does carbolic acid inflict permanent injury on the queen?"

While I have never used carbolic acid in removing honey, I have used it in removing bees from buildings and kegs and boxes when the owners wanted the bees removed—but no injury done to building, etc.

In cases of this kind I bore a hole near and above the cluster and saturate a small piece of cotton with the acid placing it in the hole—immediately closing the hole. The bees will immediately, if the weather is warm, leave by way of their entrance.

I do not know what effect this has on adult bees, but I have never had a case where the queen was not superseded within a week or ten days. On more than one occasion, I have seen queens and handled them just after they were removed with the acid. On one occasion, I caught the queen and waited till the bees were in a new hive and then released her in the hive. I might state here, I always see to it that the colony has brood of all ages. In every instance, on examination later, the queens had disappeared and queen cells were started.

Now I can come to but one conclusion, that is, that the acid affected the queen so that she either weakened or disappeared, and the bees being queenless started to raise another queen.

A. F. Wagner
Chula Vista, Calif.

In the last Confab E. R. Root brought in reports from Wisconsin and Illinois to the effect that acid does taint honey when improperly used.

And now we hear from the beekeeper who first introduced the use of carbolic acid commercially for removing surplus honey and wrote it up in the bee journals a few years ago—Mr. Chas. Mraz, Middleburg, Vermont, a commercial beekeeeper. His letter follows:

Comments on Use of Phenol

Being somewhat responsible for the extensive use of phenol in the past few years for taking off honey, I would like to make a few comments in reply to those in Confab.

W. H. Hull brings up the question of injury to bees by preventing their building up in spring. I've used the carbolic screen now for eight years on several hundred colonies of bees. I have one yard of bees where they don't seem to build up in spring like they should and also have quite a job to get queens laying. This might be blamed on the phenol, but I have another yard just one mile away that has had its supers taken off by the carbolic screen the same number of years and these bees build up just as well as they ever did, and just as strong. Undoubtedly phenol would have to injure the queen more than the bees to bring about such a condition. In my other eight yards, phenol has never shown any harmful results. In this one particular yard, it seems more a matter of the bees, "running out." This season I had a queen pass out on me that was in her fifth year. Her supers were taken off with phenol every year of her life. It apparently did not hurt her much.

Only through carelessness will the phenol go down to where the queen is. We use shallow supers and seldom disturb the bees in the brood chamber. I have been told of a case in New York where the phenol killed all the brood in a yard of bees. On closer investigation, it turned out the result was the same in colonies where the phenol was not used. Undoubtedly it was a case of poison dust in some orchard, and not the phenol. I have yet to hear of a single cell of brood being harmed with the carbolic screen.

There are undoubtedly cases where careless use of phenol has tainted honey. People who are careless should not use it.

Some cases are caused by ignorance rather than carelessness, by using too much phenol. Remember, one pound of phenol will take off three to five tons of honey. It certainly doesn't take much imagination to see the impossibility of tainting honey with phenol if such a small amount is used and all of it kept on the screen. Just one small application of concentrated phenol under good weather conditions is enough to last several days of continuous use. There should never be enough phenol on the cloth of the screen to make any visible wetness, but should be quite dry. In hot sunny weather never lay the screen tight on the super, but put it on "kitty corner". This gives a better chance for the bees to get out to the open as well as down the super. It also prevents too strong an odor in the super.

Like anything new, before anyone uses it extensively, first try it out on a few colonies to acquire the technique. Then increase its use as fast as experience permits. Follow these rules and I'm certain there will never be any tainted honey or injured bees.

Always use pure concentrated phenol and liquefy with not more than 15% water if crystallized.

Use only enough phenol on the screen to make it dry damp and do not add any more until necessary, perhaps for several days.

In hot weather place the screen on cater-cornered.

Have plenty of cloth on the screen, at least 4 thicknesses.

Do not leave screens on any longer than necessary.

Make sure phenol all soaks into the cloth before using. It will sometimes form round balls on the cloth without soaking in. Then when the screen is turned over, it will drop onto the honey in the super. This may taint it, though I never yet have had it happen. Charles Mraz,
Middlebury, Vt.

Early Supersedure of Queens

We supposed that the contribution from M. N. Freeland, Buchanan, Tenn., on the above topic, in the December Confab would get a rise out of some commercial queen breeder, and it did. When Mel Pritchard, the veteran queen breeder of 40 years' experience read it, he refilled his corn cob pipe, mumbled something to himself and then amidst clouds of smoke sat down to his old Corona and, by the "hit and peck" method pounded out the following:

A Honey of a Slam

That was a honey of a slam, that Mr. Freeland handed us queen breeders, page 733, December issue of Gleanings. He admits that our queens raised from grafted cells are large, fine-looking and very prolific, but that their offspring are unable to defend their hives, do not winter well, just do not know how to gather nectar, and are more susceptible to AFB than are bees whose queens come from eggs in natural cells.

It is generally conceded that when Bacillus larva gains an entrance to a hive the colony is doomed regardless of whether its queen came from an egg, a natural cell or a grafted cell.

He also says they do not know how to gather nectar. I know of one series of apiaries in the North consisting of about 325 colonies, under one management that averaged more than 140 pounds of surplus honey in 1936, and laid in sufficient winter stores, and all of them had queens grown from grafted cells. These bees wintered with less than 2% loss.

I have lived to see the business of rearing queens commercially grow from a small beginning to its present status of producing more than 200,000 queens a year, nearly, if not all of which are grown from grafted cells. The largest honey producers have been buying them for many years and it would seem that they should know their worth.

Mr. Freeland expresses the hope that his article may be of some benefit. I think it will be an inducement to other beekeepers to help out in Confab by giving their experiences in requeening their colonies. And I will be glad, if necessary, to give my reasons for believing that queens grown from grafted cells may be superior to the average queen reared from an egg in a natural cell. Mell Pritchard,
Medina, Ohio

Package Bees vs. Over-Wintered Colonies

The above topic was also suggested for Confab discussion and Mr. John Bruce, Chesterfield, Ill., gives his experiences as follows:

I would like to give my opinion on killing off bees in the fall to be replaced by package bees in the spring.

This spring I sent South to reputable package shippers for bees, the orders being booked a month or more in advance of shipping date.

These packages were sent from ten days to two weeks later than specified, due, no doubt, to bad weather. Some bees arrived in bad order, especially comb nuclei in which the brood was chilled. The packages were all late enough to miss fruit bloom. The weather was cold and wet after the packages arrived. The usual

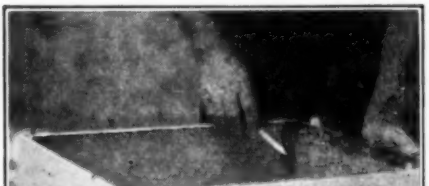
(Continued on page 53)

XUM

Heads of Grain from Different Fields

Paper Gaskets for Fumigating Honey

When comb honey or empty combs are to be fumigated with carbon disulphide, a saving in the amount of gas required may be effected by using a paper gasket between supers as they are stacked. A common practice is to use an inverted hive cover with several thicknesses of newspaper under the first super. To make the gasket, lay the newspaper on the super, place an empty super shell on the paper to hold it firmly in place and with a sharp knife cut out the paper inside this rim. Remove the paper that you have cut out from the inside, lift the super shell off carefully and put the second super to be treated in place on the rim of paper that remains around the edge. And so on until you have completed the stack. A further advantage of this plan is that it insures effective results with disulphide, which is not always the case when supers are stacked with nothing between them. The under side of the super shell used to hold the paper in place while cutting should be clean and free from propolis so that it will not stick to the paper when lifted off. —W. H. Hull, Vienna, Va.



With a sharp knife cut out the paper inside the empty super. Lift the empty off, leaving the rim of paper in place around the edge. Put the full super onto this. The paper serves as a gasket to make the joint tight, thus insuring effective treatment with carbon disulphide at a minimum cost.

Marking Queens

Why mark queens for identification? (August Gleanings, page 481). For all practical purposes a queen may be identified if she is clipped at the time she begins to lay and her record written on the hive. For example, if a queen is purchased from a breeder named Smith, introduced and later found to be laying, say in July, all that is necessary is to clip the queen and write on the side of the hive, "7-37 S. Clipt". Ordinarily it is not even necessary to open the hive for the purpose of identification. If, on regular inspection, a queen is found with wings intact, it will be known that supersedure has taken place.—E. S. Miller, Valparaiso, Ind.

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Be Careful of Cyanogas

I feel inclined to offer a word of warning to beekeepers with regard to the use of Cyanogas. I have had occasion to use it occasionally to kill a colony of bees that was infected with AFB, and have always exercised what seemed to me to be due care in its use, for we know it to be a deadly poison, and have been cautioned not to even get it into a sore or cut. I think it is one of the most humane ways to kill a colony in a hive as in two or three minutes the bees are all dead. But on one or two occasions I have found it necessary to use it in the open air on swarms clustering on a house and gaining entrance into the wall. At such a time, hanging on a ladder, it is not possible to avoid an occasional whiff of the gas in a shift of the wind. The powder was blown on the cluster with a dust gun, and with the least odor, I would stop inhalation. But I have lost the sense of smell, and blame it on the use of this gas. The loss was not immediate, but required some months. I am wondering whether any one else has had a similar experience.—C. F. Rife, M. D., Naperville, Ills.

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The Smooth Beard-tongue as a Honey Plant

While making an early morning drive along one of the back roads in southern Michigan several years ago, I came upon a low moist field, perhaps of ten acres or more, that was a

mass of white. Even the beauty was enough to make one stop to inquire what was responsible for the lovely picture, but add to that an insatiable thirst for plant knowledge and it is not necessary to say that an immediate investigation was set on foot. Imagine my surprise, though, when it was found that the field was literally swarming with bees. All that beauty and no doubt quantities of nectar came from one of the common beard-tongues (*Pentstemon laevigatus*) of the eastern states. As I remember it, this was in early or mid-June when few other nectar plants were blooming in the neighborhood. Passing that way two weeks or so later when sweet clover was in flower, few bees were on the beard-tongues. No doubt, though, it was a valuable nectar plant for a period of two weeks or more and would probably continue to produce over a long period if the more desirable sweet clover were not available. I have experimented with the plant in a small way since then and find that it is usually attractive to honeybees, though some years, for no apparent reason, they pay little attention to it. As a usual thing, though, it attracts the bees from the time it starts to bloom in June until it finishes its task in July. By referring to floras of the eastern and southern states, it will be found that the plant grows naturally throughout the territory from Pennsylvania to Missouri and southward to the Gulf, usually in moist soil. Moisture is not essential, however, for I have grown it on dry, sandy hills, where it seems to me nectar production is heavier than on lowlands. It has maintained itself for me without any attention and self-sows rather sparingly in uncultivated lands, indicating that it would be easy to grow a large acreage if trials proved it worthy of attention. Another beard-tongue, (*Pentstemon Digitalis*) which is very close to the preceding, differing mostly in having a larger flower that is abruptly inflated, seems less attractive to bees. It grows naturally over the same range as the first mentioned and could easily be mistaken for the other by the uninitiated.—C. W. Wood, Copemish, Mich.

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A Novel Introducing Method

I had a rather novel experience in introducing new queens received in mailing cages this summer. I have never lost a queen before this, or up to this year when introducing according to the directions that accompany each mailing cage, but this year some hives just wouldn't accept the new queen for some reason so I tried another method that worked perfectly in each case tried.

First, I found and disposed of the old queen then shook a good share of the bees from the frames on the ground in front of the hive, then gave the hive a good smoking down between the frames by spreading them apart. I then took the new queen from the mailing cage, and handling her carefully, just covered her with honey and dropped her down between the frames in the center of the hive. There is always a little honey handy in the upper corners of the brood frames. By the time the bees have cleaned her off, they seem to think she belongs to them and has suffered enough.

I think it might be well to state that it is a rather ticklish job to get a young, nervous queen from a mailing cage without losing or injuring her and would not recommend it to a beginner or to one at all nervous. —L. C. LeMay, West Hartford, Conn.

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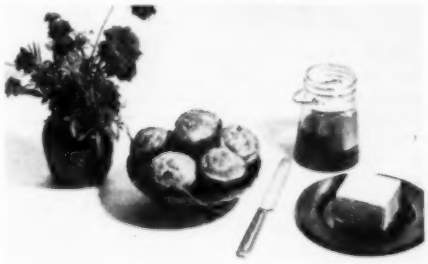
Honey Cranberry Muffins

These call for: One-half cup of cranberries, ground or chopped finely, 3 tablespoons honey, 2 cups sifted flour, 4 teaspoons baking powder, 1½ teaspoons salt, 1 egg, 1 cup milk and 3 tablespoons butter.



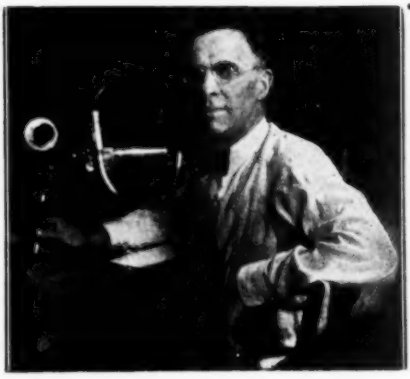
Muffins fit for a king.

Add honey to the ground cranberries and allow to stand 15 to 30 minutes. Add lightly beaten egg. Sift the flour, measure and sift with the baking powder and salt. Add honey and cranberry mixture to the dry ingredients, mixing well. Add melted butter. Bake in greased muffin tins in a hot oven, 400 degrees F. 20 to 25 minutes. Makes 12 to 14 muffins.—Mrs. Benj. Nielsen, Aurora, Nebr.

XUM

Talks to Beginners

M. J. DEYELL



For quite a number of years Gleanings has been carrying these Talks each month, except November and December. While they are intended primarily for the back lot or beginner class, they contain some information for more experienced and even veteran beekeepers. Recently I have talked with a number of experienced commercial beekeepers who said that they always read these talks. This is gratifying, because I had the feeling that perhaps the commercial beekeepers felt that these talks were written only for the beginners or primary department of beekeepers and that they, as beekeepers of long experience, didn't need to waste their time reading such trifling "stuff".

This department was started originally for those who are beginning beekeeping, and we must help beginners. Some commercial men may not have much use for the small beginner beekeeper but here is something to think about; if there were no beginners there would soon be no commercial beekeepers and that would be bad for the industry.

In some instances the beginner with two or three years' experience actually knows more about bees and honey production than some beekeepers who have kept bees for 25 years. There is a difference between a keeper of bees and a beekeeper. The former may simply keep some bees or have them about to play with or admire, while the latter handles the bees in such a way that they help to keep the owner.

Our Industry Needs More Beekeepers

In my opinion, one thing our industry is sorely in need of at present, is more beekeepers—both back lot and commercial. The little "dab" of honey produced annually in this country—approximately one pound for each person—isn't enough to even make a dent on the market. The per capita consumption of sugar is over 100 pounds. If the millions of pounds of nectar that go to waste annually for the lack of bees to gather it, were saved and consumed instead of so much sugar we would doubtless be healthier. At present there is only one colony of bees for each 451 acres in U. S. A. If it is a fact, as we were told at the Washington meeting recently, that bees are ten times more valuable as pollinators than they are as honey gatherers, it would seem that some shortages of fruit and seed crops have been due in part at least to the lack of bees to bring about proper pollination.

Marvelous Opportunities in Beekeeping

It does seem as though there are some unusual opportunities in beekeeping. The honeybee, a symbol of industry in all ages, is today receiving more recognition than ever before. It has been truly said that there is no other branch of agriculture that can be made to yield so great a return on so small an investment of capital as does beekeeping.

No Royal Road to Success

Some people seem to think that beekeeping is different from other lines of business in that very little labor is necessary and that all the owner has to do is to set a few hives of bees in his back yard, put on a few supers, perhaps hive a swarm occasionally, then recline in an easy chair under the plum tree and watch the bees carry in the honey.

As a matter of fact. the beekeeper may do these very things, but to be successful he must understand the principles of beekeeping that govern success. For example, he must understand what constitutes a real colony of bees and how such a colony may be produced. Then he must understand how to secure a crop of honey and at the same time control swarming. He must understand the principles of successful wintering. Also he must be able to detect and eradicate bee diseases.

And so, as we go through this coming season together I shall try to explain the principles of beekeeping in such a way that they may be understood and applied. If we really grasp these principles, then apply them, we are bound to succeed.

A CONFAB

(Continued from page 49)

light honey flow, that bees in this locality build up on, did not materialize. The packages demanded plenty of attention and feed. When the storm period had passed and the clovers were beginning to bloom the package had reared very little brood. Ten percent of the original packages were doubled into other weak ones, also some bees and brood was given the other packages from wintered-over colonies.

I had started queens early in April and was lucky as I replaced about 30 percent of my southern queens that were superseded. Each frame of brood cost me about 50c in sugar. At that figure, the packages, express and feed cost me between $5 and $6 at the beginning of the honey flow.

The honey flow was very light and the surplus honey from these same packages for the season averaged six pounds per package. That was the most expensive honey I ever produced or saw.

The wintered over colonies were unpacked and left alone after their usual spring examination to see if they were queen-right, disease free, and normal for that time of year.

I winter in two bodies and when the queen has filled the top body and has moved into the lower body I place a super between them. When the honey flow opened most of the wintered-over colonies were two-queen colonies. These wintered-over colonies yielded an average of 20 pounds of salable honey, about 25 pounds more of honey to start divisions with in the spring and left 60 pounds or more to winter and build up on next year.

I figure that it takes about fifteen pounds of honey to winter on for which I allow six cents, per pound. The packing and labor amount to 14c which makes the per colony expense $1.04 against the cost of packages and express which is at least $3.00.

So for me at least there is no argument in favor of killing off my bees. I expect to use packages some but for the express purpose of getting new colonies to winter over or to replace winter loss.

John Bruce,
Chesterfield, Ills.

Top Winter Entrance

Mr. Frank Labus, Minerva, Ohio, does not favor top winter entrances and tells why in the following:

The subject of top entrance wintering is very interesting and while every one argues pro and con on this subject I am receiving a delightful kick by reading the articles. Why not let the bees decide by giving them the choice of either top or bottom entrance by allowing both just before winter sets in? It has always been more than evident to me that bees want no top entrance large or small above their brood frames.

If such a top entrance is given in the proper month they will at once glue it tightly shut unless forced to use it as the only means of exit and entrance.

While I fully appreciate the annoyance of frozen and clogged bottom entrances the keeper should take enough interest in wintering his bees to keep these open. The bee test shows that a top entrance is wrong. Folks will make two or three trips daily during all kinds of weather to feed and care for fowl and other stock and why these same people insist on managing bees with only a couple of trips a winter is hard to understand. By experience I find that bees pay well and get along nicely when one is willing to care for them as he should.

Frank Labus,
Minerva, Ohio

(To be continued)

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American Honey Producers' League

President Harrell has announced the dates of the 1938 meeting of the American Honey Producers' League, as of Dec. 5, 6, 7, 1938, in New Orleans, La. The hotel headquarters have not yet been decided on. The legislative committee is composed of W. E. Anderson, Baton Rouge, La., chairman; H. F. Wilson, Madison, Wis., and Chas. A. Reese, Columbus, Ohio. All suggestions relating to legislative needs should be addressed to these gentlemen. Other committee personnel and reports of progress will be presented in future articles in the bee journals. Several things have already been done along preparatory lines and you will be informed as quickly as we arrive at definite conclusions. Just now we would welcome a few membership dollars. We have received 17 memberships up to this date and we need more in order to take care of our Institute Membership Pledge. Send your dollar bills to the Secretary-Treasurer and save the 10 cents exchange on such small checks. Your subscriptions to bee journals will be extended one year for an additional 50 cents per journal. The League wishes to extend, to every beekeeper, its best wishes for a happy and prosperous New Year.—Geo. W. Bohne, Luling, La. Secretary-Treasurer.

XUM

Buy and Sell Here

CLASSIFIED ADS

Only responsible advertisers and honest advertisements will be admitted to these columns. References required from new advertisers not known to us. Rate—7 cents per counted word each insertion. Each initial, each word in names and addresses, the shortest word such as "a" and the longest word possible for the advertiser to use, as well as any number (regardless of how many figures in it), count as one word. Copy should be in the 15th of month preceding.

HONEY FOR SALE

The reliability of honey sellers is not guaranteed, although strict references are required.

57 KEGS choice buckwheat honey. Earl H. Austin, Kanona, N. Y.

FANCY clover honey, case or quantity. J. Stahlman, Grover Hill, Ohio.

7 CASES light amber in used 60's, 6½c. Earl Walldorff, Dunkirk, N. Y.

FOR SALE—Extracted and comb honey. M. W. Cousineau, Moorhead, Minn.

HONEY—Light and light amber extracted. F. W. Lesser, Fayetteville, N. Y.

CHOICE MICHIGAN clover honey in new 60's. David Running, Filion, Mich.

BUCKWHEAT extracted, also light amber, 7c. Howard Grimble, Holcomb, N. Y.

BUCKWHEAT HONEY extracted in sixties, 6½c. Clarence Dalrymple, Dayton, N. Y.

FOR SALE—Fine buckwheat honey in kegs. Julius Seewaldt, Gainesville, New York.

Frank Rasmussen, producer of white and amber extracted honey. Greenville, Mich.

CHOICE extracted buckwheat honey in 60's, 6c. Seward Van Auken, Duanesburg, N. Y.

CHOICE CLOVER and light amber honey in 60's. The Hubbard Apiaries, Onsted, Mich.

HARRIS—Michigan clover extracted in new sixties. J. N. Harris, Saint Louis, Michigan.

MICHIGAN'S finest well-ripened white honey in new 60's. Jay Cowing, Jenison, Mich.

CHOICE MICHIGAN clover honey in new 60's. Arthur Thayer & Sons, Freeland, Mich.

TEN TONS fancy white clover honey in new sixties, 8c F. O. B. Leroy C. Keet, Watertown, N. Y.

BUCKWHEAT famous Helderberg Mountain quality, in 60's. H. Greulick and Son, Scotia, N. Y.

PALMETTO, mangrove and amber honey in new sixties. Peter W. Sowinski, Fort Pierce, Florida.

FINEST New York white clover honey in any container. Angus Carruthers, Syracuse, Rt. 2, New York.

HOWDY'S HONEY—White, clover and amber, mixed extracted in sixties. Howard Potter, Ithaca, Michigan.

FOR SALE—Blended clover extracted honey, fine flavor, 8c, in case lots. N. B. Querin, R. No. 4, Bellevue, Ohio.

BUCKWHEAT comb honey, also about 80 5-lb. pails buckwheat-amber extracted. Noel J. Loucks, Springboro, Pa.

STOLLER'S Excellent quality extracted clover honey, packed in 60's. Finest obtainable. 8c lb., guaranteed as represented. The Stoller Apiaries, Latty, Ohio.

HONEY in 60, 5, 2½ lb. cans; 4, 8, 16, 32 oz. jars and comb honey. Inquire J. Scarff, 210 Lincoln Ave., Syracuse, N. Y.

16,000 lbs. northern Michigan honey, packed 120 lbs. in case. Sample 15 cents. George Jaquays, East Jordan, Michigan.

HONEY FOR SALE—All kinds, any quantity. H. & S. Honey & Wax Co., Inc., 265-267 Greenwich St., New York, N. Y.

FOR SALE—CHOICE clover and amber extracted honey. Prices upon request. Jonkman & Oosting, Evergreen Park, Ill.

FOR SALE—No. 1 weight clover comb (discolored some) $4, per case of 24 sections; amber extracted in sixties, 7½c. H. G. Quirin, Bellevue, Ohio.

SOLD OUT of Michigan clover honey, thanks! Our 1938 crop should be ready for the market next July. E. D. Townsend & Sons, Northstar, Michigan.

COMB HONEY—Fancy amber, $3.50; No. 1, $3.25; fancy buckwheat, $3.25; No. 1, $2.75; light amber clover, 8c; buckwheat, 6½c. C. B. Howard, Geneva, N. Y.

CLOVER HONEY FROM CLOVERDALE. Ohio's finest clover extracted in 60's. Sample, 10c. Prices upon request. The Cloverdale Apiaries, Cloverdale, Ohio.

HONEY PACKERS—Write us for prices on carload lots of California and western honeys. We stock all varieties. Hamilton & Company, 108 West Sixth St., Los Angeles, Calif.

FANCY white clover comb, attractive package, $3.25 per case of 4 dozen. Sample, 15c. Extracted light amber crystallized, in 60's, 6½c. H. Blitz, P. O., Box 3452, Phila., Pa.

NEW YORK State comb and extracted honey, buckwheat and clover, any quantity, all size packages. Five-pound pails my specialty. Edward T. Cary, Midland Ave. and Tallman St., Syracuse, N. Y.

FOR SALE—Well ripened white sweet clover honey. Don't let your customers be without honey. The stock we furnish will please them. Write today for prices. Colorado Honey Producers' Association, Denver, Col.

HONEY AND WAX WANTED

BEEKEEPERS TAKE NOTE—We will not guarantee any honey buyers' financial responsibility and advise all beekeepers to sell for cash only, or on C. O. D. terms except when the buyer has thoroughly established his credit with the seller.

WANTED—White clover and amber extracted honey. Mail samples and price. Jonkman & Oosting, Evergreen Park, Ills.

WANTED—White clover and light amber extracted honey, white comb, carlots or less. Roscoe F. Wixson, Dundee, New York.

WANTED—Comb, chunk comb, white and light amber extracted honeys. Any amount. Central Ohio Apiaries, Millersport, Ohio.

CASH PAID for all grades of honey. Bee supplies and honey containers for sale. A. Tennenhouse, 12213 12th St., Detroit, Mich.

WANTED—Carlots of honey, state quantity, shipping point and price. Mail sample. Bryant & Cookinham, Inc., Los Angeles, Calif.

WANTED—White and Amber Extracted Honey, any quantity, also Beeswax. Write The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

CASH PAID for comb and extracted honey. Carloads and less than carloads. Send sample and best price F. O. B. shipping point. C. W. Aeppler Company, Oconomowoc, Wisconsin.

FOR SALE

BENCH SAW, for making hives, cheap. Willie Groom, Gashland, Mo.

WOOD FRAME rip and cutoff saw, $15.00 cash, honey or wax. D. H. Morris, Swanton, O.

COMPLETE queen painting outfit, $2.00 postpaid. Southwick Apiaries, 176 Waban Avenue, Waban, Massachusetts.

FOR SALE—1000 10-fr. hive bodies, KD, at bargain prices; also covers and bottom boards. Chas. Albrecht, Brownton, Minn.

FOR SALE OR TRADE—250 16¼"x20"x5 11/16" shallow supers, each containing nine drawn combs. O. E. Barber, Sylvania, Ohio.

YOUR WAX worked into high quality medium brood foundation, 15c pound; 100 pounds, $11.00; thin super, 22c. Fred Peterson, Alden, Iowa.

QUALITY bee supplies at money-saving prices. Prompt shipment. We take honey and beeswax in trade. The Hubbard Apiaries, Onsted, Michigan.

ATTRACTIVE prices on bee supplies and comb-foundation. Send for catalog. Saves you money. The Fred W. Muth Co., Pearl & Walnut Sts., Cincinnati, Ohio.

BEST QUALITY bee supplies, attractive prices, prompt shipment. Illustrated catalog upon request. We take beeswax in trade for bee supplies. The Colorado Honey Producers' Association, Denver, Colo.

FOR SALE—Fine quality queen mailing cages; Root quality bee supplies; both comb and extracted honey. Orders filled promptly. Write us or drive over M53, fifty miles north of Detroit, Hamilton Bee Supply Co., Almont, Michigan.

YOUR WAX worked into medium brood for $11.00 per 100 lbs. Complete line of bee supplies manufactured by us at special low factory prices. Write for free catalog and samples of foundation, shipping tags, etc. Walter T. Kelley Co., Paducah, Kentucky.

HAVE JUST PURCHASED: 2-Elyria blue glass lined jacketed agitated KETTLES, used for melting and mixing of honey, 300 gal.; also have complete line of honey processing and bottling equipment. Send us your inquiries. Consolidated Products Co. Inc., 15-21 Park Row, New York, N. Y.

FARM SEEDS

Red Clover, $15.60 bushel, 99½% pure, free noxious weeds. Strictly wholesale price. Best Idaho Clover, $23.40 bushel. Timothy, new crop, $1.60. Hardy Alfalfa, $14.70. Grimm Sealed Bag, $16.80. Scarified Sweet Clover, $5.40. Alsike, $18.60. Korean Lespedeza, $2.00. All re-cleaned, graded, tested. Guaranteed satisfactory. Write Free Samples. Frank Sinn, Box 482, Clarinda, Iowa.

BEES AND QUEENS FOR SALE

ITALIAN QUEENS, W. G. Lauver, Middletown, Pa.

SILVER RUN QUEENS are sterling. Try them. Silver Run Apiaries, Rt. 1, Phenix City, Alabama.

PLAN FOR 1938 NOW—Let package bees increase your profits. J. M. Cutts & Sons, R. 1, Montgomery, Ala.

HEADQUARTERS for Hollopeter's well-bred three-banded Italian queens. White Pine Bee Farms, Rockton, Pa.

MILLER BROTHERS—Three Rivers, Texas, are the only exclusive Caucasian queen-breeders west of the Mississippi River.

QUEENS MAILED ANYWHERE, any time, pure three band Italians, at market price. Write for circular. D. W. Howell, Shellman, Georgia.

GENUINE three-banded Italian bees and queens of fine quality, for 1938. Alamance Bee Company, Geo Elmo Curtis, Mgr., Graham, N. C.

THREE-BANDED Italian queens. Booking orders for 1938 delivery. Satisfaction guaranteed. Lamar Bee Co., Box 1503, Baton Rouge, La.

CAUCASIAN package bees. Booking orders now for 1938 delivery at new market agreement prices. P. B. Skinner Bee Co., Greenville, Ala.

BOOKING ORDERS 1938 delivery. Caucasian package bees and queens. Market agreement prices. Lewis & Tillery Bee Co., Greenville, R. 4, Ala.

FOR SALE—Pure Italian queens and bees, bright yellow and three-band. You send for them, they go. Graydon Brothers, Rt. 2, Greenville, Ala.

BOOK YOUR 1938 Bee and Queen orders with us, get quality goods backed by 27 years experience. No deposit required. Merrill Bee Company, Bucatunna, Miss.

MOUNTAIN GRAY BEES—Write for our catalog. In it will be found our prices and description of our genuine Caucasian honeybees. Bolling Bee Co., Bolling, Ala.

If you want to make money with package bee colonies, be sure they get a good start. Inquire about my pure three-banded Italians. Hugh Graham, College Station, Texas.

ITALIAN QUEENS from selected stock. Experiment Station Stock, 75c each; Spicer Stock $1.00 each, any number. See ad. May and June Gleanings. E. G. Carr, Pennington, N. J.

THE NORMA ROY APIARIES—Italian bees on comb, brood and honey with queen introduced or caged. Booking orders without deposit. Norma E. Roy, Hessmer, Louisiana.

THREE-BAND Italian bees and queens. Guaranteed to be the best that can be produced. Ready to ship March 10. I can handle your early orders. Queens are reared in orange honey flow with colonies boiling over with young bees. Marketing agreement prices. D. P. Green, Deland, Fla. Route. 2.

HELP WANTED

WANTED—Industrious young man with clean habits for the 1938 season. State experience, age, wages expected with board and room. B. B. Coggshall, Groton, N. Y.

WANTED—Industrious young man of good health and habits to work with bees. State age, weight, height, experience and wages expected. Board and room provided. A. L. Coggshall, Ithaca, N. Y.

We extend to our friends and customers the greetings of the season. Booking orders now for quality queens and package bees. Try us.

Geo. A. Hummer & Son
Prairie Point, Miss.

Package Bees and Queens for 1938

Especially selected for thriftiness, honey-getting, and gentleness. All queens personally reared. Booking orders for 1938. You set the date and we will ship.

Write us.

R. B. Herier, Valdosta, Ga.

NEW SUPER-QUALITY KITSELMAN FENCE

Heavier, amazingly improved galvanizing. Tougher, longer-lasting Copper-Bearing Steel. **Low Factory Prices. WE PAY FREIGHT.** 160 styles and heights Farm, Poultry and Lawn Fence; Steel Posts, Gates, Barb Wire, Paints, Roofing. Write today.
KITSELMAN BROTHERS
Dept. 21 **Muncie, Indiana**

Better Quality

Bees, Queens, and Service
For the SAME PRICE

J. F. McVAY
Jackson, Alabama

TWO EXPERIENCED HELPERS first May, 7 months, no board. Working 2000 colonies, Harlan, Iowa. State qualifications and wages expected. Old Taylor Honey Co., Chandler, Okla.

HELP WANTED—Experienced men in large bee business. Manager capable of taking charge. Preferably with wife who could cook for the help; also two helpers. Good opportunity for suitable help. M. E. Ballard, Roxbury, N. Y.

WANTED—Package men and queen breeders for 1938 season, beginning March 1. Must be efficient, strictly temperate, and willing to deliver the goods. Single men preferred. State wages expected in first letter. Board and room not furnished. Jensen's Apiaries, Macon, Miss.

MISCELLANEOUS

50 TO 75 COLONIES WANTED—For cash, near central New York State. Reasonable. Box 70, Gleanings.

FILMS developed, 6 or 8 print rolls with 2 professional enlargements. Dependable quality and service. 25c (coin). Allied Photo Service Co., Drawer 289, Sparta, Wis.

THE BEE WORLD—The leading bee journal in Great Britain, and the only international bee review in existence. Specializes in the world's news in both science and practice of apiculture. Specimen copy, post free, 12 cents stamps. Membership of the Club, including subscription to the paper, 10/6. The Apis Club, L. Illingworth. The Way's End, Foxton, Royston, Herts, England.

POULTRY

MAKE MONEY with poultry. Read America's biggest poultry magazine. Learn how leading poultry raisers succeed. Only poultry magazine operating its own experimental farm. Three years $1.00, 9 months trial 25c. Poultry Tribune, Dept. C-52. Mount Morris, Ill.

SITUATION WANTED

WANTED—Job with large reliable Southern package shipper,—Alvin E. Roop, Jr., Rhodes, Michigan.

TOO LATE TO CLASSIFY

PACKAGE BEES that will please you. Sternenberg Bros., Lockhart, Texas.

WILL SELL all or part package outfit. Alonzo McKay, R. 1, Vicksburg, Miss.

AMBER HONEY—Good quality, not less than 50% clover. Harry Spooner, Stephens, Arkansas.

FANCY white tupelo honey, will not granulate. 9c in sixties, 8c in barrels. Stevenson's Apiaries, Apalachicola, Fla.

PACKAGE BEES AND QUEENS—For the past five years I have been producing bees and queens in this sub-tropical climate under natural conditions from my northern stock. Let me explain why these packages are producing upward to four hundred pounds honey in my Dakota apiaries and very little superseding. R. D. Jenkins, San Benito, Texas.

BETTER-BRED QUEENS---Three-Banded Italians

Booking orders for packages for 1938. Let us quote you our prices on queen cages, any size you wish. We can save you money. **Trade Agreement Prices**
CALVERT APIARIES **CALVERT, ALABAMA**

CRANBERRIES TAKE A BOW

(Continued from page 17)

with a filling made by boiling 1 cup water and ½ cup sugar together for 5 minutes. Add 2 cups of cranberries and the grated rind of 1 orange. Cook until the cranberries have popped. Add 3 tablespoons of honey and 1½ tablespoons of cornstarch mixed with 1 tablespoon of cold water. Cook 3 minutes longer. Top the torte with whipped cream slightly sweetened with honey.

Jellied Cranberry Orange Salad

One medium-sized orange, 2 cups cranberries, 2 tablespoons honey, 1 package of lemon flavored gelatine, 1¾ cups boiling water, lettuce, and salad dressing.

Dissolve the lemon gelatine in the boiling water. Chill until slightly thickened. Meanwhile cut the orange and remove the seeds. Wash cranberries and drain well. Put orange and cranberries through food chopper. Add the honey to the fruits, mix well and allow to stand until the gelatine is ready to receive them. Fold into the gelatine and turn into individual molds. Chill. Unmold on crisp lettuce and garnish with honey salad dressing.

Aurora, Nebraska.

WHEN WRITING TO ADVERTISERS, MENTION GLEANINGS.

Three-Banded Italian Queens

Shasta Apiaries

Geo. W. Moore F. W. Chapman

Post Office: Shasta, Shasta Co., CALIFORNIA.
Express Office, REDDING, CALIF.

Package Bees and Queens

The type that gives you less trouble in swarming season. Queens 75c each. 2-lb. package and queen, $2.45. 3-lb. package and queen, $3.15. Discount to dealers. Safe arrival, satisfaction guaranteed.

TAYLOR APIARIES Luverne, Ala.

Carniolans

Caucasians

Very gentle at all times, very prolific, wonderful workers. Ask for my free paper and learn more about these races. Queens and packages in season.

ALBERT G. HANN, GLEN GARDNER, N. J.

GASPARD'S

High Quality Queens and Package Bees for Spring 1938

Marketing Agreement Prices
Let us quote your need.

J. L. GASPARD HESSMER, LA.

Jensen's Package Bees and Queens for 1938

Our larger output, and improved facilities, will, we hope, enable us to handle all orders sent us, and ON TIME.

The quality will be the highest we know how to produce, and consistent with our interpretation of what constitutes QUALITY in the mind of the customer. SERVICE designed to please you.

In view of advance in price of nearly every item used by us and entering into our cost of operation, in order to maintain the uniformly high quality of our product we submit the following prices:

2-Pound packages with Select 1938 Queens	1- 10,	$2.65 each
" " " " " "	11-100,	2.55 each
" " " " " "	101-250,	2.45 each
To recognized Dealers, or larger quantities by special arrangement or delivery to trucks.		2.25 each
3-Pound packages with Select 1938 Queens	1- 10,	$3.40 each
" " " " " "	11-100	3.30 each
" " " " " "	101-250,	3.20 each
To recognized Dealers, or larger quantities by special arrangement or delivery to trucks.		3.00 each

QUEENS 1-10, 85c each; 11-100, 75c each.

JENSEN'S APIARIES, BOX 305, MACON, MISS.

Queen Yard (9000 nuclei) of

Overbey Apiaries, Bunkie, L

YOUR PACKAGE IS N

Our bees are young, hardy, healthy honey-getters. Our queens are as good as can be had. Our packages are constructed of the lightest of material. Our full weight, highest of quality, and prompt shipments guarantee you perfect satisfaction.—**Pay us a visit sometime—.**

THE TORONTO BEE CONVENTION

(Continued from page 23)

the experimental stage but it appears to have some good points.

Double-Brood Chamber

This topic brought on a spirited discussion. Some were for it. Others were against it. The majority seem to favor the double-brood chamber because it reduces labor, supplies an abundance of stores and produces strong colonies when conditions are normal.

Honey Containers

The Ontario net weight tin containers are 2-lb., 4-lb., and 8-lb. pails. Also the 10-lb. pail is used to some extent, as well as a 30 and 60-lb. can. As in the U. S. A., the trend in Canada is towards a simplification and standardization of sizes and styles of containers.

Straining Honey

W. G. La Maistre of the Ontario Agricultural College at Guelph, says the use of heat is not of much advanage in straining honey, because heat also melts wax and melted wax makes matters worse. If you remove foreign matter from honey it will remain liquid a long time. At the college some honey was strained with a 200-mesh strainer last January and at the time of this meeting this honey had not yet granulated.

Much credit is due Dr. E. J. Dyce, Secretary and Treasurer of the Ontario Association and Provincial Apiarist, also R. H. Thompson, President, and H. O. White, Vice President, for the set-up of the program as well as the orderly way in which the meeting was carried on.

Genuine Italian

Package Bees and Queens
Satisfaction—Finest Quality
Write for Circular
HOLDER APIARIES
CITRONELLE, ALA.

Package Bees and Queens

for early spring shipment
Book orders now.
No deposit required.
Trade Agreement Prices
Citronelle Bee Co.
Citronelle, Ala.

For quality and honest, efficient service on package bees and queens, Italians or Caucasians, book your order with

Weaver Apiaries, Navasota, Texas

erbey Apiaries, Bunkie, Louisiana

Home of Good Beekeeping

ETTER THAN YOUR QUEEN

Write for prices. 15% to dealers. Telephones: Day 177, Night 176. Truckers, come by. We can load you on short notice.

BEE BREEDING

(Continued from page 12)

cannot be used in line breeding involving parent-offspring crosses. Furthermore, since queen and drone function only in reproduction, progeny tests—in other words, the collective colony behavior exhibited by the worker progeny—must be relied upon exclusively in testing the inheritance of the queen and drone for such economically important characters as honey gathering, wax secretion, pollinating activity, and the like. Even when a parent queen is bred pure for the same color factors as the drone with which she mates, her color pattern may differ from that of her worker daughters, since in some races, the Italian being one, the causes that lead to the development of worker structures in a larva, with a resultant arrest in the development of its reproductive organs, also lead to a modification of its color pattern.

More Knowledge Regarding Reproductive Process Needed

The advantageous employment of present mating methods, or their improvement, whether natural or artificial insemination is involved, will be facilitated when the physiological processes preceding and accompanying mating are better understood, since much remains to be known regarding the conditions most favorable for mating. For example, the concensus of opinion is that the queen mates when about a week old or shortly thereafter, but a queen 56 days old has been artificially inseminated with success. A knowledge of the external signs, if there are any, that queen and drones are ready for mating should go far in increasing the usefulness of methods of artificial insemination and also be of advantage in work involving natural insemination.

As a matter of fact, until recent years little was known about reproduction in the honeybee. Knowledge that drones are produced from unfertilized eggs (parthenogenesis), at least in European varieties of the common honeybee, dates only from the middle of the last century, and the origin of queen and worker and the fact that the queen mates on the wing outside the hive has been known for only about 150 years.

More has been done in studying the mating processes in the drone than in the queen. The most complete study on the drone is that by Bishop (4), who found that usually the drone is not sexually mature until the ninth to twelfth day after emergencies, but that some drones are apparently incapable of mating at any age. Bishop also found the function of the mucus, which the male organ contains in addition to sperm. During mating the sperm is merely transferred from the drone to a temporary storage place in the vagina and oviducts of the queen. The spermatozoa collect within the spermatheca during the next few hours and may live there for 6 years or more. While still in the oviducts and vagina, however, the sperm might all escape through the genital

XUM

opening were not this opening filled with the mucus from the drone when the last of the sperm has entered. This mucus quickly hardens on exposure to air, and thus forms a temporary stopper in the genital opening.

The anatomy and the physiological responses of the queen in relation to mating are being studied by Harry Laidlaw, formerly in the employ of the Department, but now a graduate student of the University of Wisconsin. This study includes the structure and functioning of the queen's genital organs, a subject on which little is known, but a knowledge of which is demanded for the further successful development of methods, not only of artificial insemination but even for obtaining natural matings in confinement. Laidlaw has found that a membranous fold arising from the floor of the vagina fits so snugly in the genital passage as to be able to thwart attempts to inseminate queens artificially by his method or perhaps sometimes to defeat efforts to insert the glass syringe by the Watson method.

(To be continued)

JUST NEWS

(Continued from page 36)

Cornell University, Ithaca, New York; G. H. Cale, Field Editor, American Bee Journal, Hamilton, Illinois; and Dr. R. E. Lothrop, United States Bureau of Chemistry and Soils, Washington, D. C. Speakers within the state will include representatives from the State Department of Agriculture, Ohio State University, Ohio Farm Bureau, Editorial staff of Gleanings in Bee Culture, manufacturers of bee supplies and leading apiarists from various honey producing areas. The banquet is scheduled for the evening of January 25 and according to the "Banquet committee" plenty of good fun is in store for all. A copy of the program for the Beekeepers' Short Course may be obtained upon request to the Division of Bee Culture, Ohio State University, Columbus, Ohio.

• • •

The following paragraph taken from a letter sent us by the Fred W. Muth Co., is of interest to every beekeeper in this part of the country: "Tell the beekeepers who have been 'stung' by honey buyers giving 'rubber checks' to write to Mr. Ford, of the Food & Drug Administration, 326 John St., Cincinnati, Ohio, giving him full details as to exact dates of the transaction, figures, amounts, etc., and Mr. Ford will do the rest."

Queens! Queens!

Marketing Agreement Prices

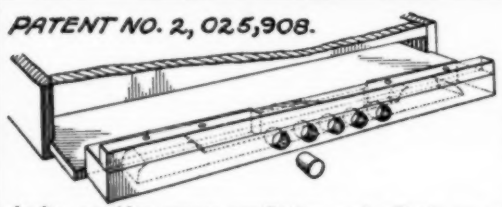
The Puett Company

"Where Satisfaction is a Certainty"

HAHIRA, GEORGIA

Australian Beekeeping News
The Leading Bee Journal of the Southern Hemisphere is the
"Australasian Beekeeper"
Subscription 5 shillings per year. Start any time. Inquire for International Money Order for five shillings (Australian) at your Post Office.
Write now to The Editor, P. O. Box 20, West Maitland, New South Wales, Australia.

PATENT NO. 2,025,908.



ATTENTION BEEKEEPERS

This ingenious patented entrance for beehives keeps out winter drafts, provides proper ventilation, and affords an uninterrupted entry for the bees. Its use has effectively protected bees from the rigors of winter, and has proven a saver of money, honey, and bees. Prices on any number and descriptive literature upon application.

JAMES D. SCHLEGEL, Inventor, Tamaqua, Penna.

Package Bees and Queens

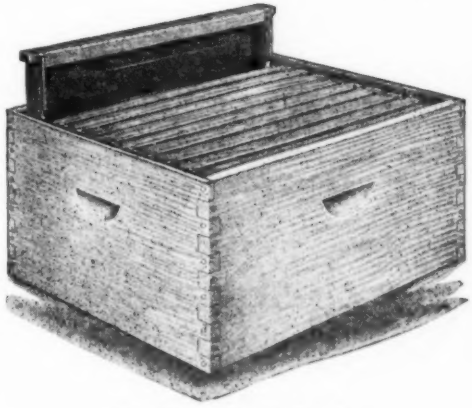
We could write a whole page as to the quality of our Three-banded Italians. But we will let our past record speak for itself.

If you want **prompt,** efficient, business-like service on high quality bees and queens, let us book your order. Prices on request.

Also quality bee supplies.

The Stover Apiaries
Mayhew, Miss.

Beekeepers Appreciate Quality



Hive Body Sales Increase 2½ Times

See Your Root Dealer

The A. I. Root Company, Medina, O.
"BEST BY THE BEE TEST"

$6490.17

That's the total of 2040 delinquent Institute memberships from 1931 to December, 1937.

Are you satisfied to drop out?

$1.00 will put you back on the mailing list for 1938 releases including a copy of the new directory and financial report and a free copy of the new 1937 revised edition of "100 Honey Helpings" and also entitle you to the use of the new free recipe service stickers.

Isn't that worth a $1.00?

Send in your renewal now and take the first step in preparation for and anticipation of your 1938 crop.

American Honey Institute

Madison, Wisconsin

(This space is donated to the American Honey Institute by Gleanings in Bee Culture)

Package Bees and Queens
for 1938

We regret the impossibility to quote prices for 1938 in this ad. This is due to the lateness of the Government's Public Hearings on proposed revisions in the Marketing Agreement, results of which have not yet been published.

Package bee purchasers may rest assured, however, that we have better service than ever in store for them for 1938.

Send in your orders to be booked in an orderly manner, as respect to dates bees required. Details of prices to be arrived at after Revisions in the Marketing Agreement have been made public. A prosperous New Year is our wish to all.

GARON BEE COMPANY, Donaldsonville, La.

GET RUNNING'S BEES
And Get Honey—They Satisfy
PACKAGES AND QUEENS

The kind WE use in our extensive Michigan Apiaries, where WE produce honey by the carload.

ALL ITALIAN STOCK

Service guaranteed. Stock bred for honey-getting and gentleness. Apiaries accredited and certified by Alabama Department of Agriculture. Get our free circular. YOU can now get RUNNING'S bees and queens as cheap as others.

All bees and queens shipped from our Alabama Apiaries.

2-lb. pkg. and queen, $2.45; 3-lb. pkg. and queen. $3.15. Untested Italian Queens, $0.75. No discounts.

DAVID RUNNING APIARIES
Sumterville, Ala., or Filion, Mich.

Wishing Every One
a Very Prosperous 1938

With favorable weather conditions together with good package bees and queens, you can harvest a bumper crop of honey.

Better place your order early so as to be sure of getting your packages when you want them.

We breed from three-band leather-colored stock.

The Crowville Apiaries
Winnsboro, La.

Brookfield, Ga.
W. O. Gibbs

Book your orders early.

Marketing Agreement prices.

Safe arrival and satisfaction guaranteed.

Good queens, full weight, young bees.

Three-band Italians.

Bees and Queens.

Honey Bowl
Bees and Queens

Again we offer our powerful queens, package bees and nuclei. Last year's business four times bigger than 1936. Only the best bees and service could promote this phenomenal growth. Write for reasons and prices.

Honey Bowl Apiaries
Reserve, La.

Caucasian Apiaries
Brooklyn, Alabama

Importers and breeders of highest quality Caucasian bees and queens. Write for free circular.

A Good Rule to Go By

Buy your Italian bees and queens from

ALABAMA APIARIES
MT. PLEASANT, ALA.
Marketing Agreement Prices

XUM

Package Bees and Queens

Quality Bred Italians

The New Year is here and we should put every effort forward to make it one of the best. During the past season honey crops may have been less favorable in many sections, but the small carry-over should lend encouragement for greater production and demand. The general outlook appears bright for the producer who may take advantage of the opportunity to be ready.

Write us now for prices on package bees in any quantity for spring delivery and book order for shipping date wanted. We are prepared to help you with a larger supply, better quality and service than ever before. Safe arrival and satisfaction guaranteed.

York Bee Company

Jesup, Georgia

(The Home of Quality Products)

Package Bees Queens

Let us quote you on package bees and queens for your 1938 needs.

We have both imported and domestic stock.

Many large honey producers are demanding imported stock exclusively.

Our cell builders are fed only on honey, the natural food of the bees.

Satisfaction Guaranteed

Rossman & Long

Moultrie, Georgia

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